UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF NEW YORK

FRONTIER AIRLINES, INC. **Plaintiff** **v.** AMCK AVIATION HOLDINGS IRELAND LIMITED, ACCIPITER INVESTMENT 4 LIMITED, VERMILLION AVIATION (TWO) LIMITED, WELLS FARGO TRUST COMPANY, N.A., solely in its capacity as OWNER TRUSTEE, and UMB BANK, N.A., solely in its capacity as OWNER TRUSTEE, **Defendant(s)**	**Case No. 1:20-cv-09713**

EXPERT REPORT OF

DR. KEVIN NEELS

ON BEHALF OF

FRONTIER, INC.

SEPTEMBER 9, 2022

CONTENTS

I. INTRODUCTION

A. QUALIFICATIONS

1. I have more than 40 years of experience as a consultant and expert witness in the aviation, rail, trucking, courier, postal, and automotive industries. I have led many significant engagements relating to competition, market structure, pricing, revenue management, distribution strategy, regulation, and public policy. My work has addressed issues related to system planning, competition policy, privatization, and congestion management. I have testified on numerous occasions in international arbitrations, before regulatory bodies, and in state and federal courts.

2. I am currently self-employed. I served formerly as Principal and Transportation Practice Leader at The Brattle Group, and as Vice President and leader of the transportation practice at Charles River Associates. I have also served as a researcher in the Urban Policy Program at the Rand Corporation and in the Transportation Studies Program at the Urban Institute, as a Director in the Transportation Practice at the consulting firm of Putnam, Hayes & Bartlett, as a Management Consultant in the Transportation Practice of the firm now known as KPMG. I was for many years the Chairman of the standing Committee on Freight Transportation Economics and Regulation of the Transportation Research Board, an arm of the National Academy of Sciences. I am currently a member of the Transportation Research Board's standing Committee on Airfield and Airspace Performance.

3. I earned my Ph.D. from Cornell University. My CV is included as Appendix 2 to this report.

B. WHAT I'VE BEEN ASKED TO TESTIFY ABOUT

4. I have been asked to quantify the economic injury suffered by Frontier, Inc. ("Frontier") as a result of the unilateral decision by AMCK Aviation Holdings and its co-defendants ("AMCK") on May 8, 2020 to terminate the Framework Agreement they had entered into with Frontier only a few months before. I have been asked, in particular, to compute the magnitude of the damage award that would be required to compensate Frontier for the economic injury it has suffered as a result of the actions of AMCK, and to make it whole.

C. MATERIALS CONSIDERED

5. The materials I considered in reaching my opinions are listed in Appendix 3 to this report.

D. SUMMARY OF MY OPINIONS

6. I conclude that the total amount that must be paid to Frontier in order to compensate it for its injury and make it whole is $43.941 million. In the event that a WACC-based discount rate is appropriate, the total amount that must be paid to Frontier in order to compensate it for its injury and make it whole is $35.982 million.

7. These opinions are based upon the information available to me as of the date of the preparation on this report. I reserve the right to update and/or modify these opinions if new information becomes available.

II. BACKGROUND

A. THE PARTIES

1. Frontier

8. Frontier Airlines is a U.S. based low cost air carrier headquartered in Denver, Colorado. As of the end of 2021 Frontier operated a fleet of 110 Airbus single-aisle aircraft.[1] All of these aircraft were financed under operating leases.[2]

2. AMCK and Other Defendants

9. AMCK Aviation was a leasing company established on October 30, 2019. The company was a full service, global leasing platform with a portfolio of over 170 owned, managed, and committed fleet, consisting of both narrowbody and widebody aircraft. The shareholders of

---

[1] Frontier Airlines Annual 10-K Report for Fiscal Year Ending December 31, 2021, at p. 3.

[2] Frontier Airlines Annual 10-K Report for Fiscal Year Ending December 31, 2021, at p. 44.

AMCK were CK Asset Holdings Limited (50%), Mitsubishi Corporation (40%), and Li Ka Shing Foundation (10%).[3]

3. Frontier's Past Relationships with AMCK

10. As of the beginning of 2020 Frontier and AMCK had entered into a number of lease agreements covering a total of 14 aircraft. At that time AMCK was Frontier's largest lessor.[4]

B. THE FRAMEWORK AGREEMENT

11. In March of 2020 the two parties had entered into a new Framework Agreement, through which AMCK had committed to purchasing from and leasing back to Frontier six new Airbus aircraft that Frontier was scheduled to purchase and take possession of from Airbus in 2020.[5] Frontier negotiated the original purchase prices with Airbus, paid deposits and progress payments, and when the aircraft were delivered, was responsible for payment of the negotiated purchase prices. The Framework Agreement anticipated that following the purchases of these aircraft from Airbus, in separate transactions, AMCK would purchase the new aircraft from Frontier, and then lease them back in exchange for monthly lease payments by Frontier. Among other terms, the Framework Agreement specified the purchase price that AMCK would pay,[6] and the base rental amount that Frontier would pay on a monthly basis.[7] Frontier was scheduled to take possession of the first three aircraft to be delivered under this Framework Agreement in March of 2020. The remaining aircraft were scheduled to be delivered in May, June, and August of that same year. [8]

---

3 "AMCK Aviation: Lessor," CAPA Centre for Aviation, last accessed September 8, 2022, available at https://centreforaviation.com/data/profiles/lessors/amck-aviation.

4 Complaint, November 18, 2020, at ¶ 30.

5 Framework Agreement, FRONTIER0002829 at 832.

6 Framework Agreement, FRONTIER0002829 at 873.

7 Framework Agreement, FRONTIER0002829 at 832.

8 Framework Agreement, FRONTIER0002829 at 832, 868.

C. EFFECTS OF THE PANDEMIC

12. As everyone knows, the coronavirus pandemic emerged as a serious global health threat in the spring of 2020. The rapid spread of this disease had significant effects on the worldwide economy, and in particular, on the airline industry, and its suppliers and investors.

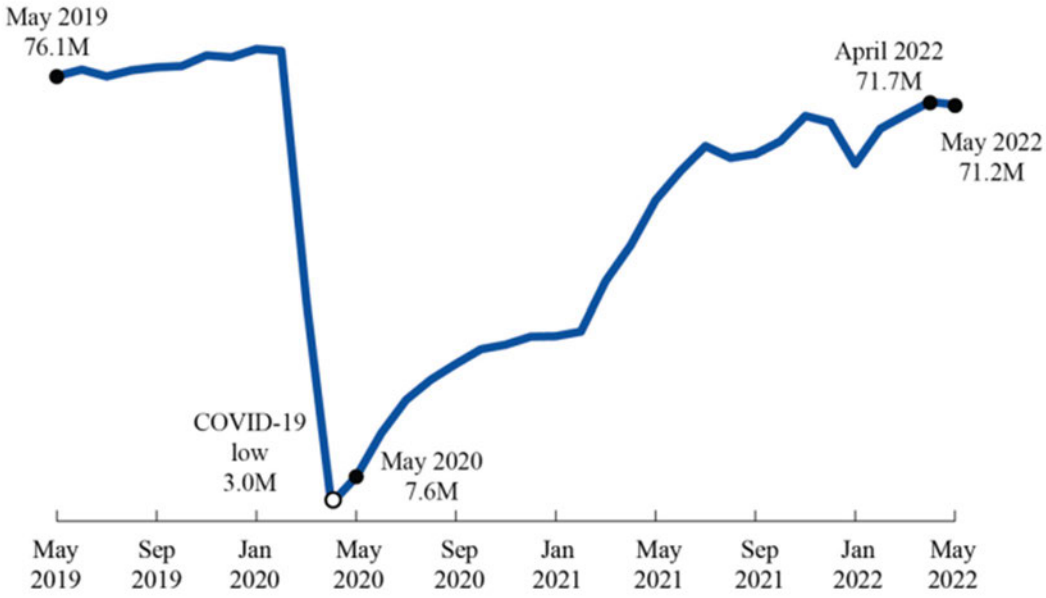
13. As Frontier noted in one of its SEC filings:

> The rapid spread of COVID-19, along with government-mandated restrictions on travel, required stay-in-place orders, and other social distancing measures, resulted in a drastic decline in near-term air travel demand in the United States, and caused reductions in revenues and income levels as compared to corresponding pre-pandemic periods.[9]

14. In a relatively short period of time Frontier found itself carrying many fewer passengers, generating less revenue, and flying fewer aircraft. Other airlines had similar experiences. Data published by the Bureau of Transportation Statistics, part of the U.S. Department of Transportation, tell an eloquent story about events during this time period, as shown in Figure 1.

[9] Frontier Airlines Annual 10-K Report for Fiscal Year Ending December 31, 2021, at p. 3.

FIGURE 1: MONTHLY PASSENGERS ON U.S. SCHEDULED AIRLINES (DOMESTIC + INTERNATIONAL, SEASONALLY ADJUSTED, MAY 2019-MAY 2022



Source: "May 2022 U.S. Airline Traffic Data," Bureau of Transportation Statistics, https://www.bts.gov/newsroom/may-2022-us-airline-traffic-data, last accessed August 15, 2022.

Although the immediate impacts of the pandemic on the airline industry were severe, these impacts were mitigated to a significant extent by emergency government aid.[10] Despite this aid, however, many airlines requested rent deferrals form the lessors.[11]

D. AMCK'S TERMINATION OF THE FRAMEWORK AGREEMENT

15. On May 8, 2020, AMCK issued to Frontier a Notice of Termination of the March 2020 Framework Agreement (the "Termination Notice"). In this notice AMCK asserted that Frontier's failure to pay rent on aircraft that Frontier leased from AMCK under other agreements gave AMCK the right to unilaterally terminate the Framework Agreement.[12] This act by AMCK

---

[10] *See,* "Airline and National Security Relief Programs," U.S. Department of the Treasury, last accessed September 9, 2022, available at https://home.treasury.gov/policy-issues/coronavirus/assistance-for-american-industry/airline-and-national-security-relief-programs.

[11] In one survey from this period, 66% of lessor respondents said that their companies had granted relief requests. *See,* "Survey: COVID-19 Impact on Airlines and Aircraft Lessors," last accessed September 8, 2022, available at https://glginsights.com/articles/survey-covid-19-impact-on-airlines-and-aircraft-lessors/.

[12] Complaint, at ¶ 20.

followed a complex series of events involving AMCK and Frontier that had taken place over the preceding weeks.

16. According to the Amended Complaint, Frontier took delivery on March 16, 2020 of the first of the aircraft[13] covered by the Framework Agreement. Frontier promptly paid the rent that it owed on this aircraft.[14] Shortly after the delivery of this aircraft, Frontier asked all of its aircraft lessors to consider granting it a one-time three month rent deferral. In making these requests Frontier noted the negative effects that the coronavirus pandemic was having on the demand for air travel.[15]

17. Shortly after the delivery of the first aircraft—MSN 10038—to Frontier, AMCK informed the airline of its desire to terminate the Framework Agreement.[16] Following receipt of Frontier's request for a short-term rent deferral, AMCK demanded that the economic terms of the Framework Agreement be renegotiated to make them more favorable to AMCK. AMCK also demanded that Frontier work with Airbus to postpone the deliveries of the five remaining aircraft covered by the Framework Agreement. AMCK then granted Frontier a temporary suspension of rent payments on 14 of the 15 aircraft leased by Frontier from AMCK.[17] Frontier entered into negotiations with Airbus, and on May 5, 2020 secured that company's agreement to defer deliveries of the five aircraft that Frontier still had on order.[18]

18. Despite the fact that Frontier had succeeded in meeting AMCK's demand for postponement of deliveries of the five remaining aircraft, and that it had been granted a temporary deferral of rent payments owed to AMCK, the latter company nonetheless informed Frontier on May 8, 2020 of the termination of the Framework Agreement.

---

[13] This aircraft bore manufacturer's serial number 10038 ("MSN 10038"). *See*, Complaint, at ¶ 35.

[14] Complaint, at ¶ 16.

[15] Complaint, at ¶ 18.

[16] Complaint, at ¶ 17.

[17] Complaint, at ¶ 19.

[18] Amendment No. 9 to A320 Family Aircraft Purchase Agreement, May 4, 2020, FRONTIER0005667.

E. FRONTIER'S EFFORTS TO MITIGATE DAMAGES

19. Frontier acted promptly to make alternative financing arrangements for the five remaining aircraft that it had on order. It eventually succeeded in these efforts. On June 29, 2020 CDB Aviation Lease Finance of Dublin ("CDB" or "CDB Aviation") agreed to purchase and lease back three new aircraft that were scheduled to be delivered to Frontier in the following month.[19] On October 7, 2020 Jackson Square Aviation ("JSA" or "JSA International") of San Francisco, CA agreed to purchase and lease back to Frontier the remaining aircraft it had on order.[20] However, the terms of these replacement agreements were much less favorable to Frontier than those provided for in the Framework Agreement with AMCK.

III. APPROACH TO CALCULATION OF DAMAGES

A. OVERVIEW

1. The But-For Approach

20. To calculate damages I follow an approach that is widely accepted within economics, and within state and federal courts. This approach is often referred to as the "but-for" approach. As described in the Reference Manual for Scientific Evidence,[21] this approach measures the damages caused by a harmful act as "the difference between the plaintiff's economic position if the harmful event had not occurred and the plaintiff's actual economic position."[22] The hypothetical scenario in which the harmful act had not occurred is often referred to as the "but-for" world—that is, the world that the injured party would have faced, but-for the harmful act. The injured party's actual economic position can be observed and measured directly. Its but-for economic status, however, must be inferred from the facts of the case, using appropriate economic tools and reasoning.

---

[19] CDB Aviation Lease Finance DAC Letter of Intent, FRONTIER0011290.

[20] Jackson Square Aviation Letter of Intent, FRONTIER0012136.

[21] National Research Council 2011. *Reference Manual on Scientific Evidence: Third Edition*. Washington, DC: The National Academies Press. https://doi.org/10.17226/13163 ("Reference Manual on Scientific Evidence").

[22] "Reference Guide on Estimation of Economic Damages," in Reference Manual on Scientific Evidence: Third Edition, at p. 432.

2. Nature of the But-For World in this Case

21. It is clear in this case that the key difference between the actual and the but-for world is that in the but-for world AMCK would not have terminated its Framework Agreement with Frontier, and would have entered into purchase and lease back agreements with Frontier for the five remaining aircraft on the terms that are set forth in that Agreement, which the two parties had agreed upon just a few months earlier. AMCK's failure to do just this is precisely the harmful act alleged in this dispute.

3. The Measure of Damages

a. Difference between the Actual and But-For Worlds

22. To quantify the economic injury suffered by Frontier as a result of AMCK's termination of the Framework Agreement one must identify the specific ways in which the revenues earned and expenses incurred by Frontier changed as a result of AMCK's actions.

23. In this instance I am not aware of any reason why the operating revenues or operating costs of Frontier might have been affected by the actions of AMCK. Prior to AMCK's termination of the Framework Agreement, Frontier and Airbus had agreed to defer the delivery of the five remaining aircraft. Delivery dates would thus have been the revised dates agreed to by Frontier, and would have been the same in the actual and but-for worlds. It is therefore reasonable to assume that Frontier would have operated the same flights, carried the same passengers, and collected the same fares in the actual and but-for worlds.[23]

24. However, the terms of the replacement leases differ substantially from the terms provided for in the Framework Agreement in ways that have caused and will cause injury to Frontier. First, the purchase prices specified in the replacement sale and leaseback agreements were lower than those called for in the Framework Agreement. In addition, the basic monthly rent amounts

---

[23] It is worth noting that, while it is true that the monthly lease payments owed by Frontier would have been different in the actual and but-for worlds, those financial obligations were not influenced in any way by the number of flights operated, or even whether the leased aircraft were operated at all. For this reason, the lower lease payments Frontier would have enjoyed in the but-for world would not have influenced the expected marginal profitability of a flight.

realized under the replacement leases were significantly higher than those that would have been realized under the terms of the Framework Agreement. The replacement leases required Frontier to make larger security payments. Some of the replacement leases contained terms relating to the costs of complying with airworthiness directives, and certain other provisions that were less favorable to Frontier.[24]

b. Discount Rate

25. The damages in this case will be experienced by Frontier over the course of the twelve-year replacement leases. In order to determine the appropriate compensation owed Frontier for the injury that it has experienced and will continue to experience over the remaining term of the twelve-year leases, one must calculate the current value of the stream of economic losses Frontier will experience. Such a calculation requires a discount rate. There are a number of conceptual issues that must be addressed in selecting an appropriate discount to use in this proceeding.

26. It is well accepted that the appropriate discount rate to use in calculating the present value of a stream of costs or payments should account both for the fundamental time value of money, and the specific risks of the costs or payment under consideration.[25] When the injured party is a business entity, it is common to use that entity's weighted average cost of capital ("WACC")[26] as

---

[24] The Federal Aviation Administration ("FAA"), the agency responsible for overseeing the safety of commercial aircraft, will sometimes issue an Airworthiness Directive requiring commercial aircraft owners and operators to make specific modifications to a defined group of commercial aircraft in order to address safety problems that the FAA becomes aware of after the aircraft in question have been in operation for a period of time following their initial certification. Both the Framework Agreement and the replacement leases contain provisions specifying how the costs of complying with an airworthiness directive covering the leased aircraft should be divided between the lessor, and Frontier, the lessee. *See, e.g.,* the lease for MSN 10038, the only aircraft leased under the Framework Agreement, AMCK014555 at 612-613. Any such costs below a threshold amount specified in each lease are borne entirely by Frontier. Any costs above that threshold are borne by the lessor. Thus, a lower threshold is more favorable to Frontier, while a higher threshold is more favorable to the lessor. Other terms of the lease can affect the manner in which airworthiness compliance costs are divided between the lessee and the lessor. For example, certain leases contain provisions that cause the threshold amount to change over the course of the lease. *See, e.g.,* the CDB Aviation Letter of Intent, FRONTIER0011290 at 292. I understand, however, that Frontier regards the threshold level as the primary parameter that the parties focus on in negotiations.

[25] *See, e.g.,* Richard A. Brealey, Stewart C. Myers, and Franklin Allen, "Principles of Corporate Finance," 12th Edition, at p. 236.

[26] The weighted average cost of capital measures the rate that a business must pay in order to fund the capital assets required for the operation of the business. It is computed as a weighted average of the interest rate the business must pay on its debt, and the rate of return it must offer to is equity investors.

a discount rate in computing damages. The general rationale for this selection is that if the injured party is a business, it will be the cash flows of that business that are altered by the injury. A company's WACC will reflect the riskiness of those cash flows.

27. [redacted]

28. Although I believe that a debt-based discount rate is most appropriate given the facts of this case, because it is common to discount a business entity's damages using its weighted average cost of capital, I will present an alternative calculation of damages using this approach.

29. To compute the total amount of Frontier's economic injury as of the date of this report I follow standard discounting procedures. Specifically, I discount the losses that Frontier has experienced and will experience to establish their net present value as of the date of the termination—May 8, 2020. In computing this net present value I use a discount rate that reflects the riskiness of these payment streams. I then carry this discounted amount forward to the present (specifically, the date of the filing of this report) using a risk free discount rate. The use of a risk free rate reflects

---

27 [redacted]

the fact that once Frontier has been made whole as of the time of injury, the only valuation issue that needs to be addressed is the time value of money, and the fact that Frontier will be compensated not at the time of injury, but at a later point in time.

c. Treatment of Taxes

30. I calculate Frontier's damages on an after tax basis. For each affected time period I calculate the net loss of revenue experienced by Frontier as a result of AMCK's termination of the Framework Agreement, and then multiply this number by one minus Frontier's tax rate to compute the net after tax effect. I then discount these after tax impacts using an after tax discount rate, arriving thereby at a measure of the net after tax economic injury experienced by Frontier. Finally, to compute the damages owed to Frontier I divide the amount of the after tax injury to Frontier by one minus Frontier's tax rate. A damage award of this amount would leave Frontier in the same position after taxes that it would have been in had the termination not occurred.

IV. CALCULATION OF DAMAGES

31. To quantify the damages suffered by Frontier as a result of AMCK's termination of the Framework Agreement, I compare the terms of the leases that would have emerged from that Agreement with the terms of the replacement leases that Frontier was forced to enter into. The latter terms differed between CDB and JSA. As I noted above, the relevant terms included the purchase price of the aircraft, the basic monthly rent paid under the lease, the details of the required security deposit, and other provisions, including those relating to the sharing of the costs of complying with airworthiness directives. Below I discuss each of these terms and how they differ across lessors.

A. AIRCRAFT PURCHASE PRICE

32. The transactions at issue in this proceeding were structured as follows.

33. The aircraft covered by the leases in question were manufactured by Airbus. [redacted]

[redacted]

34. Frontier then, in two closely linked transactions, sold the aircraft to the lessor, and then entered into a long-term lease permitting Frontier to use the aircraft, in exchange for a series of regular monthly lease payments.[28] The purchase price for the resale of the aircraft obviously reflected current market conditions, as well as the alternatives and bargaining power of the two parties. [redacted]

35. [redacted]

B. BASE MONTHLY RENT

36. [redacted]

37. [redacted]

---

[28] For each of the aircraft in question there is a sale and leaseback agreement, and a more detailed lease agreement setting forth in more detailed the rights and obligations of the two parties under the lease.

[29] Framework Agreement, FRONTIER0002829 at 873.

[30] CDB Aviation Letter of Intent, FRONTIER0011290 at 291.

[31] JSA International Letter of Intent, FRONTIER0012136 at 137.

[32] Framework Agreement, FRONTIER0002829 at 832.

[33] CDB Aviation Letter of Intent, FRONTIER0011290 at 291.

[34] JSA International Letter of Intent, FRONTIER0012136 at 137.

[redacted]

TABLE 1: PROVISIONS FOR ADJUSTING MONTHLY RENTS

Lessor	Adjustment Terms
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Sources and Notes:
[1]: FRONTIER0002829 at 847.
[2]: FRONTIER0011290 at 291.
[3]: FRONTIER0012136 at 137–138.

C. SECURITY DEPOSIT

38. [redacted]

D. AIRWORTHINESS DIRECTIVE COST SHARING PROVISIONS

39. As noted above, some of the replacement leases incorporated airworthiness cost sharing provisions less favorable than those provided for in Frontier's agreements with AMCK.[38] However, because it is impossible at this point to foresee which future airworthiness directives, if any, might apply to the remaining five leased aircraft, or what the costs of complying with those directives might turn out to be, it is impossible to place a specific dollar value on these contract term differences. In the face of these uncertainties, the most conservative course of action is to ignore them. For this reason, I have not accounted for these differences in my computation of damages.

E. REDELIVERY TERMS

40. I understand that the redelivery terms of the CDB leases are less favorable to Frontier than the corresponding AMCK terms, especially as regards to the potential incremental maintenance

---

35 Framework Agreement, FRONTIER0002829 at 847.

36 CDB Letter of Intent, FRONTIER0011290 at 291.

37 JSA Letter of Intent, FRONTIER0012136 at 138.

38 *See,* Footno×te 24.

exposure at the end of the leases. However, I do not have access to information that would permit me to place a dollar value on these term differences. I reserve the right to modify my opinions should such information become available.

F. EARLY TERMINATION OPTION

41. [redacted]

G. EFFECTS BY INDIVIDUAL AIRCRAFT AND LEASE

42. In this section I describe the overall effects of the contractual differences described above for each of the five affected aircraft. These descriptions provide the key inputs necessary for computation of damages.

43. Table 2 summarizes the key contractual terms that changed as a result of the termination for aircraft MSN 9549. This aircraft was delivered in July of 2020, and its replacement lessor was CDB Aviation. [redacted]

[39] *See,* MSN 10038 lease, AMCK014555 at 585–586.

[redacted]

TABLE 2: SUMMARY FOR MSN 9549 OF CONTRACTUAL TERMS AFFECTED BY THE TERMINATION

	AMCK [A]	CDB [B]
[redacted]		

Sources and Notes:

[1][B]: "MSN 9549 Lease," FRONTIER0011322.

[2][A]: "2020 Framework Agreement," FRONTIER0002829 at 873.

[2][B]: "CDB Letter of Intent," FRONTIER0011290 at 291.

[3]: "Aircraft Inquiry - Serial Number 9549," FAA, last accessed August 25, 2022, available at https://registry.faa.gov/aircraftinquiry/Search/NNumberResult?NNumberTxt=368FR.

[4][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[4][B]: "MSN 9549 Lease," FRONTIER0011322 at 434. [redacted]

[5][A]: "2020 Framework Agreement," FRONTIER0002829 at 832.

[6][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[5][B],[6][B]: "MSN 9549 Lease," FRONTIER0011322 at 435.

[7]: [redacted]

[8][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[8][B]: "MSN 9549 Lease," FRONTIER0011322 at 435.

[9][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[9][B]: "MSN 9549 Lease," FRONTIER0011322 at 434-435. [redacted]

[10][A]: "10038 Lease," AMCK014555 at 695.

[10][B]: "MSN 9549 Lease," FRONTIER0011322 at 435–436. [redacted]

[11][A],[12][A]: "10038 Lease," AMCK014555 at 589-590.

[11][B],[12][B]: "MSN 9549 Lease," FRONTIER0011322 at 435.

44. Table 3 through Table 6 provide similar summaries for the other four aircraft affected by the termination.

TABLE 3: SUMMARY FOR MSN 10031 OF CONTRACTUAL TERMS AFFECTED BY THE TERMINATION

	AMCK [A]	CDB [B]
[redacted]		

Sources and Notes:

[1][B]: "MSN 10031 Lease," FRONTIER0011678.

[2][A]: "2020 Framework Agreement," FRONTIER0002829 at 873.

[2][B]: "CDB Letter of Intent," FRONTIER0011290 at 291.

[3]: "Aircraft Inquiry—Serial Number 10031," FAA, last accessed August 25, 2022, available at https://registry.faa.gov/aircraftinquiry/Search/NNumberResult?NNumberTxt=369FR.

[4][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[4][B]: "MSN 10031 Lease," FRONTIER0011678 at 791. [redacted]

[5][A]: "2020 Framework Agreement," FRONTIER0002829 at 832.

[6][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[5][B],[6][B]: "MSN 10031 Lease," FRONTIER0011678 at 791.

[7]: [redacted]

[8][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[8][B]: "MSN 9549 Lease," FRONTIER0011322 at 435.

[9][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[9][B]: "MSN 10031 Lease," FRONTIER0011678 at 790-791. [redacted]

[10][A]: "10038 Lease," AMCK014555 at 695.

[10][B]: "MSN 10031 Lease," FRONTIER0011678 at 791. [redacted]

[11][A],[12][A]: "10038 Lease," AMCK014555 at 589–590.

[11][B],[12][B]: "MSN 10031 Lease," FRONTIER0011678 at 791.

TABLE 4: SUMMARY FOR MSN 10089 OF CONTRACTUAL TERMS AFFECTED BY THE TERMINATION

	AMCK [A]	CDB [B]
[redacted]	[redacted]	[redacted]

Sources and Notes:

[1][B]: "MSN 10089 Lease," FRONTIER0011678.

[2][A]: "2020 Framework Agreement," FRONTIER0002829 at 873.

[2][B]: "CDB Letter of Intent," FRONTIER0011290 at 291.

[3]: "Aircraft Inquiry—Serial Number 10089," FAA, last accessed August 25, 2022, available at https://registry.faa.gov/aircraftinquiry/Search/NNumberResult?NNumberTxt=371FR.

[4][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[4][B]: "MSN 10089 Lease," FRONTIER0011678 at 790. [redacted]

[5][A]: "2020 Framework Agreement," FRONTIER0002829 at 832.

[6][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[5][B],[6][B]: "MSN 10089 Lease," FRONTIER0011678 at 790.

[7]: [redacted]

[8][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[8][B]: "MSN 9549 Lease," FRONTIER0011322 at 435.

[9][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[9][B]: "MSN 10089 Lease," FRONTIER0011678 at 789–790. [redacted]

[10][A]: "10038 Lease," AMCK014555 at 695.

[10][B]: "MSN 10089 Lease," FRONTIER0011678 at 789-790. [redacted]

[11][A],[12][A]: "10038 Lease," AMCK014555 at 589–590.

[11][B],[12][B]: "MSN 10089 Lease," FRONTIER0011678 at 790.

TABLE 5: SUMMARY FOR MSN 10384 OF CONTRACTUAL TERMS AFFECTED BY THE TERMINATION

	AMCK [A]	JSA [B]
[redacted]		

Sources and Notes:

[1][B]: "MSN 10384 Lease," FRONTIER0011912 at 021.

[2][A]: "2020 Framework Agreement," FRONTIER0002829 at 873.

[2][B]: "JSA Letter of Intent," FRONTIER0012136 at 137.

[3]: "Aircraft Inquiry - Serial Number 10384," FAA, last accessed August 25, 2022, available at https://registry.faa.gov/aircraftinquiry/Search/NNumberResult?NNumberTxt=377FR.

[4][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[4][B]: "MSN 10384 Lease," FRONTIER0011912 at 021. [redacted]

[5][A]: "2020 Framework Agreement," FRONTIER0002829 at 832.

[6][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[5][B],[6][B]: "MSN 10384 Lease," FRONTIER0011912 at 021. [redacted]

[7][A]: [redacted]

[7][B]: [redacted]

[8][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[8][B]: "MSN 9549 Lease," FRONTIER0011322 at 435.

[9][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[9][B]: "MSN 10384 Lease," FRONTIER0011912 at 021. [redacted]

[10][A]: "10038 Lease," AMCK014555 at 695.

[10][B]: "MSN 10384 Lease," FRONTIER0011912 at 020. [redacted]

[11][A],[12][A]: "10038 Lease," AMCK014555 at 589–590.

[11][B],[12][B]: "MSN 10384 Lease," FRONTIER0011912 at 941.

TABLE 6: SUMMARY FOR MSN 10452 OF CONTRACTUAL TERMS AFFECTED BY THE TERMINATION

	AMCK [A]	JSA [B]
[redacted]		

Sources and Notes:

[1][B]: "MSN 10452 Lease," FRONTIER0012024.

[2][A]: "2020 Framework Agreement," FRONTIER0002829 at 873.

[2][B]: "JSA Letter of Intent," FRONTIER0012136 at 137.

[3]: "Aircraft Inquiry - Serial Number 10452," FAA, last accessed August 25, 2022, available at https://registry.faa.gov/aircraftinquiry/Search/NNumberResult?NNumberTxt=377FR.

[4][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[4][B]: "MSN 10452 Lease," FRONTIER0012024 at 133. [redacted]

[5][A]: "2020 Framework Agreement," FRONTIER0002829 at 832.

[6][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[5][B],[6][B]: "MSN 10452 Lease," FRONTIER0012024 at 133. [redacted]

[7][A]: [redacted]

[7][B]: [redacted]

[8][A]: "2020 Framework Agreement," FRONTIER0002829 at 847.

[8][B]: "MSN 9549 Lease," FRONTIER0011322 at 435.

[9][A]: "2020 Framework Agreement," FRONTIER0002829 at 847. [redacted]

[9][B]: "MSN 10452 Lease," FRONTIER0012024 at 133. [redacted]

[10][A]: "10038 Lease," AMCK014555 at 695.

[10][B]: "MSN 10452 Lease," FRONTIER0012024 at 132. [redacted]

[11][A],[12][A]: "10038 Lease," AMCK014555 at 589–590.

[11][B],[12][B]: "MSN 10452 Lease," FRONTIER0012024 at 053.

H. DISCOUNTING AND TREATMENT OF TAXES

45. As noted above, I present the results of two alternative calculations of Frontier's damages. My preferred approach uses a debt-based discount rate. For comparison purposes I also present the results of a damages calculation using a discount rate based upon Frontier's weighted average cost of capital. As I explain below, I carry out both of these calculation on an after tax basis, and then adjust these results for the tax consequences of the damage award itself. In this section I describe in detail my treatment of these issues.

1. Derivation of a Debt-Based Discount Rate

46. I base the preferred discount rate in my damages calculations on the interest rate paid by Frontier on its debt around the time of the injury it suffered. In its 10-K report for the fiscal year ending December 31, 2021, Frontier reports having entered into a loan agreement on September 28, 2020. As of the end of calendar year 2020 the outstanding balance on this loan was $150 million, [redacted]. Frontier reported that this loan was collateralized by its co-branded credit card arrangement and related assets.[40]

[40] Frontier Group Holdings, Inc. Form 10-K for the fiscal year ended December 31, 2021 (Form 10-K for 2021), at p. 116.

The interest rate on this loan was set at LIBOR[41] plus 2.5 percent. The closing 12-month U.S. dollar LIBOR value for September 28, 2020 was 0.3655 percent,[42] implying an interest rate as of that date of 2.87 percent.[43]

47. For the following reasons, the interest rate associated with this debt instrument represents an appropriate proxy for the risks associated with the streams of lease payments that give rise to Frontier's damages. First, it is a rate associated with secured debt. Second, [redacted] Finally, the debt was incurred close in time to May 8, 2020, the date on which the termination of the Framework Agreement occurred.

2. Derivation of a WACC-Based Discount Rate

48. In order to obtain Frontier's WACC for the relevant time period, I turned to a standard source, Bloomberg Professional Services, sometimes known as a "Bloomberg Terminal." Unfortunately, Bloomberg contained no information on Frontier. The reason Frontier did not appear in Bloomberg was that during the period when the injury occurred Frontier was privately held. The airline did not go public until 2021. The S-1 form for its public offering was dated March 8, 2021.[44] As of the time this report was prepared, Bloomberg still contained no WACC data for Frontier.

49. Given the difficulties and uncertainties of measuring the cost of capital for a privately held company, I adopted a statistical approach to developing a WACC value for Frontier. Theoretically one would expect the cost of capital for a company to reflect the cost structure of the company and the riskiness of its business. These features of a business will be heavily influenced by the characteristics of the industry within which that business operates. In the specific case of Frontier, Frontier shares many of the characteristic of its competitors in the airline industry. All U.S. airlines hire similar staff, operate similar (and sometimes identical)

---

41 The loan documents actually specified that the interest rate was equal to *adjusted* LIBOR plus 2.5 percent. *See*, Form 10-K for 2021, at p. 116. However, because the Federal Reserve had eliminated the relevant reserve requirements, at the time of the loan the LIBOR and adjusted LIBOR were identical.

42 Bloomberg Terminal. Specifically, I use the US0012M index.

43 Pursuant to the details of the loan agreement, the rate is rounded up to the nearest 1/100th of a percent.

44 Frontier Group Holdings, Inc. Form S-1, at p. 1.

equipment, incur capital costs to gain access to similar capital assets, confront similar operational problems and challenges, and are subject to similar cyclical economic forces. For these reasons, it was reasonable to use the WACC values for other carriers to infer what the appropriate WACC for Frontier would be. I therefore constructed a dataset of WACC values for U.S. passenger airlines, and developed a regression model to use to compute the unknown WACC value for Frontier.

50. Regression analysis is a widely recognized and commonly used procedure for developing quantitative estimates of the effects that some set of causal factors (in this case, airline characteristics and market condition) have on some other quantity of interest (in this case, the company's weighted average cost of capital). An application of regression analysis begins with the specification of a mathematical equation describing the relationship between one or more causal or correlated factors and the quantity of interest. That equation will contain one or more parameters whose values are unknown. Thus unknown values are estimated by finding the values of the unknown parameters that produce the most accurate predictions of the quantity of interest.

51. There are a number of significant advantages to using regression analysis to measure Frontier's WACC. First, it is objective and reproducible. In addition, regression analysis produces measures of goodness of fit and statistical reliability that aid in the interpretation of the results. These statistical measures can also be used to test alternative hypotheses regarding the strength of the statistical relationships.

52. The dataset upon which this model is based describes U.S. passenger airlines for which WACC values were available. In building this dataset I excluded cargo airlines, as well as regional carriers, which typically operate smaller aircraft under code-sharing agreements with major passenger carriers. The list of carriers included in the dataset is shown in Table 7. For each airline I sought to collect twelve quarters of data covering the period from the start of 2019 through the end of 2021. Because of missing values I wound up with slightly less than twelve quarters of data per airline, resulting in a sample size of 100 observations. The distribution of these observations across airlines is also shown in Table 7.

TABLE 7: COMPOSITION OF THE WACC REGRESSION DATASET

Carrier	Number of observations
Alaska Airlines	12
American Airlines	12
Allegiant Airlines	12
Delta Airline	12
JetBlue	12
Southwest	12
Spirit	12
Sun Country	4
United Airlines	12
All Carriers	100

53. The dependent variable in my regression analysis is the natural logarithm of the after-tax weighted average cost of capital, as reported in Bloomberg, for a specific airline in a specific quarter. As explanatory variables, I include a complete set of quarter indicator variables, as well as time invariant airline characteristic variables. With only nine airlines, the number of airline characteristic variables I could consider was limited.[45] Accordingly, I chose those variables that I judged to be most important in distinguishing Frontier from other passenger airlines.

54. The first such variable was a measure of airline size. The nine airlines included in the sample differed substantially in terms of the size of their fleets, networks, and revenues. Size has significant effects on an airline's cost structure, operational complexity, market presence, and business strategy. The specific measure of size that I chose was the total number of available seat miles provided by the airline in calendar year 2019.[46] The selection of a pre-pandemic year eliminated the complex distortions and geographically differentiated impacts associated with the pandemic. The selection of available seat miles, rather than a passenger-based measure such as number of enplanements or revenue passenger miles abstracted from the effects of transient

[45] It would, of course, have been possible to forgo the use of airline characteristic variables, and instead control for airline effects by including in the model a complete set of airline indicator variables. Such an approach would have provided reliably measurements of the overall airline-specific influences on weighted average cost of capital. However, it would have provided no basis for inferring the weighted average cost of capital for Frontier, defeating the whole purpose of the regression exercise.

[46] For this data series, I relied upon the T1 U.S. Air Carrier Traffic and Capacity Summary Data available from the Bureau of Transportation Statistics. *See,* https://www.transtats.bts.gov/Fields.asp?gnoyr_VQ=FJH

demand shocks, and short-term shifts in carrier-specific pricing or marketing strategies. Because of the very large range of sizes spanned by this set of airlines, the specific measure I included in my regression analysis is the natural logarithm of total systemwide available seat miles.

55. The second control variable included in the model is an indicator variable identifying low cost airlines. While the designation "low cost carrier" does not seem to have a precise definition, this designation is widely used in the industry, and identifies a collection of operational and business practices that distinguish low cost carriers from more traditional carriers. Low cost carriers are less likely than traditional carriers to organize their networks around hub and spoke operations. They tend to avoid large, highly congested airports, preferring instead to operate out of nearby secondary facilities.[47] They tend to operate simpler fleets incorporating only a few types or perhaps even just one type of aircraft. They tend to be more oriented to tourist or recreational destinations rather than business destinations. And, they tend to charge lower fares.[48] Frontier identifies itself as an "ultra low-cost carrier."[49] It was thus important to take the set of characteristics associated with this designation into account.

56. Given that there is no single "official" list of low cost carriers, I relied upon a number of sources. Wikipedia listed Allegiant, Frontier, JetBlue, Southwest, Spirit, and Sun Country as the low cost carriers operating in the United States.[50] The Website "Scotts Cheap Flights" identifies Allegiant, Avelo, Breeze, Frontier, JetBlue, Spirit, Southwest, and Sun Country as low cost carriers.[51] The article "An Economic Analysis of the Low-Cost Airline Industry," on the Investopedia website provides a partial list of low cost carriers, identifying Allegiant, JetBlue, Spirit, and Southwest as the biggest of this group.[52] Based upon these sources and my own knowledge of the industry, I designate out of the set of carriers addressed by my analysis, the following as low cost carriers: Allegiant, JetBlue, Frontier, Southwest, Spirit, and Sun Country.

---

47 For example, services to the San Francisco area offered by Southwest Airlines tend to focus on Oakland Airport, rather than the larger and more crowded San Francisco International Airport.

48 For a discussion of low cost airline business practices, *see,* https://www.investopedia.com/articles/investing/022916/economic-analysis-lowcost-airline-industry-luvdal.asp.

49 Frontier Group Holdings, Inc. Form 10-K for the fiscal year ended December 31, 2021, at p. 3.

50 https://en.wikipedia.org/wiki/List_of_low-cost_airlines

51 https://scottscheapflights.com/guides/the-best-and-worst-budget-airlines-for-us-domestic-flights

52 https://www.investopedia.com/articles/investing/022916/economic-analysis-lowcost-airline-industry-luvdal.asp

57. The results of this regression analysis are shown in Table 8 below. This simple model explains 60 percent of the variation in the log of WACC across the sample. Taken together, the regression coefficients are highly significant. The coefficients on the control variables—available seat miles and the low cost airline indicator—are also significant. There is substantial variation over time in the WACC values.

TABLE 8: WACC REGRESSION RESULTS

Variable	Coefficient (Standard Error)
Low Cost Carrier Indicator	0.119**
	(0.0540)
Log of Systemwide Available Seat-Miles (2019)	-0.0785***
	(0.0254)
Q2 2019	-0.0421
	(0.102)
Q3 2019	-0.123
	(0.102)
Q4 2019	-0.144
	(0.102)
Q1 2020	-0.148
	(0.102)
Q2 2020	-0.130
	(0.102)
Q3 2020	-0.199*
	(0.102)
Q4 2020	0.0175
	(0.102)
Q1 2021	0.217**
	(0.0996)
Q2 2021	0.280***
	(0.0996)
Q3 2021	0.313***
	(0.0996)
Q4 2021	0.203**
	(0.0996)
Constant	3.840***
	(0.664)
Observations	100
R-squared	0.600

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sources and notes: regression of the natural log of WACC on the variables displayed. Sample comprised of quarterly observations covering 9 U.S.-based airlines, as summarized in Table 7.

58. To compute the natural logarithm of Frontier's weighted average cost of capital I simply multiply Frontier's values for the independent variables in the regression by the appropriate regression coefficients. As noted above, I treat Frontier as a low cost carrier. I obtain a value for Frontier's calendar year 2019 available seat miles from the same source that provided the values in the regression dataset. Because the termination occurred on May 8, 2020, I calculate the natural logarithm of Frontier's WACC as of the second quarter of 2020.

59. Substituting Frontier's values into the regression equation produces an unbiased estimate of the *logarithm* of Frontier's WACC. To produce an unbiased estimate of the WACC itself, one further step is necessary. Specifically, it is necessary to take the exponent of the predicted logarithm of Frontier's WACC, incorporating a technical adjustment to account for a property of the natural logarithmic transformation.[53] These calculations are summarized in Table 9.

[53] While the expected residual from a regression is generally zero, the expectation of the exponent of that residual is not zero. Rather, the expectation of a normally-distributed variable with mean zero and variance σ^2 is the exponent of $(\sigma^2/2)$. *See*, *e.g.,* William Gould, "Use poisson rather than regress; tell a friend," The Stata Blog, August 22, 2011, last accessed September 8, 2022, available at https://blog.stata.com/2011/08/22/use-poisson-rather-than-regress-tell-a-friend/.

TABLE 9: REGRESSION-BASED CALCULATION OF FRONTIER'S AFTER-TAX WACC

Variable		Regression Coefficient	Variable Value for Frontier in Q2 2020	Product
		[A]	[B]	[C]
Low Cost Carrier Indicator	[1]	0.119	1	0.1188
Log of Systemwide Available Seat-Miles (2019)	[2]	-0.0785	24.1	-1.8898
Q2 2020	[3]	-0.130	1	-0.1303
Constant	[4]	3.840	1	3.8398
Predicted log value	[5]			1.9386
Exponent (Predicted Log Value)	[6]			6.9493
Root Mean Square Error from Regression	[7]			0.20453
Predicted after-tax WACC, after accounting for logarithmic adjustment	[8]			7.09%

Sources and Notes:

[1][A] – [4][A]: Regression coefficients from previous table.

[B]: Values to apply to relevant coefficients. Frontier had 28.1 billion available seat miles in 2019; the natural log of this total is approximately 24.1.

[1][C] – [4][C] display the product of columns [A] and [B] in the corresponding row.

[5][C] is the sum of [1][C]:[4][C].

[6][C] = exp([5][C]).

[7][C] is taken from the regression results that produced the results displayed in the previous table.

[8][C] = [6][C] × exp((1 + [7][C])^2) / 2), expressed as a percentage.

3. Calculation of Frontier's Tax Rate

60. I base my calculation of Frontier's effective tax rate on that company's reported financial results for 2019, the latest year unaffected by the pandemic, and the only year in the company's public financials for which it reported a positive tax liability. As shown in Table 10 below, in that year Frontier paid taxes in the amount of 22.8 percent of its pre-tax income.

TABLE 10: CALCULATION OF FRONTIER TAX RATE

Income before income taxes	[1]	325
Income Tax Expense	[2]	74
Effective Tax Rate	[3]	22.8%

Sources and Notes:

[1], [2]: Frontier Form 10-K for 2021, p. 96.

[3] = [2] / [1].

4. Derivation of a Risk Free Discount Rate

61. I use the interest rates in 10-year U.S. Treasury securities as my measure of the risk-free discount rate. These values are shown in Table 6 below. I focus on the period from the date of AMCK's termination of the Framework Agreement to the date of this report. Because I am computing damages on an after-tax basis, I adjust the raw Treasury security interest rates for Frontier's tax rate. Results of these calculations are shown in Table 11 below. I compute that over this period the after tax risk free rate was 1.2256 percent per year.

TABLE 11: CALCULATION OF RISK-FREE RATE FOR PRE-AWARD INTEREST

Month and Year	Annual Yield on Risk-Free Security	Corresponding Monthly Yield	Days in Month	Monthly Yield, Adjusted to Account for Partial Months	After-tax risk-free rate	End of Month Value
[1]	[2]	[3]	[4]	[5]	[6]	[7]
						1
May-20	0.67%	0.0558%	31	0.0432%	0.0334%	1.0003
June-20	0.73%	0.0608%	30	0.0608%	0.0470%	1.0008
July-20	0.62%	0.0517%	31	0.0517%	0.0399%	1.0012
August-20	0.65%	0.0542%	31	0.0542%	0.0418%	1.0016
September-20	0.68%	0.0567%	30	0.0567%	0.0438%	1.0021
October-20	0.79%	0.0658%	31	0.0658%	0.0508%	1.0026
November-20	0.87%	0.0725%	30	0.0725%	0.0560%	1.0031
December-20	0.93%	0.0775%	31	0.0775%	0.0599%	1.0037
January-21	1.08%	0.0900%	31	0.0900%	0.0695%	1.0044
February-21	1.26%	0.1050%	28	0.1050%	0.0811%	1.0052
March-21	1.61%	0.1342%	31	0.1342%	0.1036%	1.0063
April-21	1.64%	0.1367%	30	0.1367%	0.1055%	1.0073
May-21	1.62%	0.1350%	31	0.1350%	0.1043%	1.0084
June-21	1.52%	0.1267%	30	0.1267%	0.0978%	1.0094
July-21	1.32%	0.1100%	31	0.1100%	0.0850%	1.0102
August-21	1.28%	0.1067%	31	0.1067%	0.0824%	1.0111
September-21	1.37%	0.1142%	30	0.1142%	0.0882%	1.0120
October-21	1.58%	0.1317%	31	0.1317%	0.1017%	1.0130
November-21	1.56%	0.1300%	30	0.1300%	0.1004%	1.0140
December-21	1.47%	0.1225%	31	0.1225%	0.0946%	1.0150
January-22	1.76%	0.1467%	31	0.1467%	0.1133%	1.0161
February-22	1.93%	0.1608%	28	0.1608%	0.1242%	1.0174
March-22	2.13%	0.1775%	31	0.1775%	0.1371%	1.0188
April-22	2.75%	0.2292%	30	0.2292%	0.1770%	1.0206
May-22	2.90%	0.2417%	31	0.2417%	0.1866%	1.0225
June-22	3.14%	0.2617%	30	0.2617%	0.2021%	1.0246
July-22	2.90%	0.2417%	31	0.2417%	0.1866%	1.0265
August-22	2.90%	0.2417%	31	0.2417%	0.1866%	1.0284
September-22	2.90%	0.2417%	30	0.0644%	0.0498%	1.0289

Growth between May 8, 2020 and September 9, 2022, using the post-tax risk-free growth rate	2.8892%
Years between May 8, 2020 and September 9, 2022.	2.34
Compound average annual post-tax risk-free rate for relevant period.	1.2256%

Sources and Notes:

[2]: Market Yield on U.S. Treasury Securities at 10-Year Constant Maturity. FRED Series GS10, available at https://fred.stlouisfed.org/series/GS10. For September 2022, I apply the August 2022 yield.

[3] = [2] / 12.

[5] = [3], after adjusting for partial months in May 2020 and September 2022.

[6] = [5] × (1 − 22.8%). Tax rate of 22.8% calculated in <<2019 Tax Rate>> tab.

[7] = Value at end of previous month × (1 + [6]).

V. DAMAGES RESULTS

62. The information contained in Table 2 through Table 6 provide the inputs necessary for the computation of damages. While the general concepts underlying the damages calculations are straightforward, the details are somewhat complex. I will explain those details through a discussion of the damages calculations arising from aircraft MSN 9459. Those calculations are presented in Exhibit 1.[54]

63. The column labeled "Date," shown on the left of Exhibit 1 shows the dates associated with all of the payment events related to the lease for MSN 9459. The column to its immediate right contains descriptions of these payment events, while the next column to the right shows the number of months between the date of each payment event, and the valuation date, May 8, 2020. These month counts drive the discounting process.

64. The next major section to the right describes the cash flows that would have been associated with a lease for MSN 9549 granted to Frontier under the terms of the Framework Agreement. This section contains three subsections. The leftmost subsection shows undiscounted pre-tax cash flows. The middle subsection shows undiscounted after-tax cash flows. The rightmost subsection shows discounted after-tax cash flows. Within each subsection there are three columns, one for each of the three payment related provisions that differed between the but-for lease and the replacement lease. The leftmost of the three columns shows the purchase prices paid to Frontier. The middle column shows monthly rent payments, and the rightmost column shows cash flows arising from security deposit requirements.

65. The rightmost major section in Exhibit 1 has the same structure as the major section described above, in the preceding paragraph. However, instead of showing payments that would have been made under a lease derived from the Framework Agreement, it shows the payments that will be made under the replacement agreement. That lease was issued by CDB.

---

[54] Appendix 1 contains the 15 Exhibits to my report. They include, for each relevant aircraft: a) detailed cash flow calculations; b) alternate detailed cash flow calculations using Frontier's WACC as a discount rate; and c) alternate damages summaries using that same alternate discount rate.

66. Exhibit 1 thus provides a complete description of the actual and but-for cash flows associated with the change in lease terms for aircraft MSN 9549. To compute the damages associated with the changes in lease terms for this aircraft, it is only necessary to summarize the payment streams shown in this Exhibit.

67. Table 12, shown below, does exactly that. The first two rows show the cash flows and damages associated with this aircraft that arise from differences in sales price. The table includes both undiscounted pre-tax values, and discounted after tax values. The next two rows show comparable calculations for the cash flows and damages associated with this aircraft that arise from differences in monthly rents. This provision accounts for the bulk of the damages. The following two lines show comparable values for the security deposit provisions. Total after-tax damages associated with the aircraft as of the time of the termination of the Framework Agreement come to $6.677 million. Bringing this value up to the date of this report brings the total after-tax damages associated with this aircraft to $6.870 million. Note that this amount does not take into account the taxes Frontier will have to pay on a damage award, and so it falls short of what it would take to make Frontier whole. I address that issue below.

TABLE 12: SUMMARY OF DAMAGES TO FRONTIER ARISING FROM LEASE FOR MSN 9549 (IN THOUSANDS OF DOLLARS), USING DEBT-BASED DISCOUNT RATE

Sources and Notes:

[1]: "CDB Letter of Intent," FRONTIER0011290 at 291; "2020 Framework Agreement," FRONTIER0002829 at 873. [1][C] = [1][A] − [1][B].

[2]: After-tax NPV of [1]. See 1 table for details. [2][D] = [2][A] − [2][B].

[3]: Sum of Undiscounted Pre-Tax Rent Payments; See Appendix table for details. [3][C] = [3][A] − [3][B].

[4]: After-tax NPV of [3]. See Appendix table for details. [4][D]A = [4][A] − [4][B].

[5]: Calculated based on provisions in lease documents. [5][C] = [5][A] − [5][B].

[6]: After-tax NPV of [5]. See Appendix for details. [6][D] = [6][A] − [6][B].

[7]: Sum of the differences in after-tax NPV figures from rows [1], [3], and [5].

[8]: After-tax risk-free rate, based on cumulative yield on U.S. ten-year treasury bonds since the valuation date.

[10] = [7] × (1 + [8]) ^ [9]) − [7].

[11] = [7] + [10].

Totals may not sum due to rounding.

68. Table 13 through Table 16, contained below, show comparable calculations for the remaining four aircraft.

TABLE 13: SUMMARY OF DAMAGES TO FRONTIER ARISING FROM LEASE FOR MSN 10031 (IN THOUSANDS OF DOLLARS), USING DEBT-BASED DISCOUNT RATE

Sources and Notes:

[1]: "CDB Letter of Intent," FRONTIER0011290 at 291; "2020 Framework Agreement," FRONTIER0002829 at 873. [1][C] = [1][A] − [1][B].

[2]: After-tax NPV of [1]. See Appendix table for details. [2][D] = [2][A] − [2][B].

[3]: Sum of Undiscounted Pre-Tax Rent Payments; See Appendix table for details. [3][C] = [3][A] − [3][B].

[4]: After-tax NPV of [3]. See Appendix table for details. [4][D] = [4][A] − [4][B].

[5]: Calculated based on provisions in lease documents. [5][C] = [5][A] − [5][B].

[6]: After-tax NPV of [5]. See Appendix for details. [6][D] = [6][A] − [6][B].

[7]: Sum of the differences in after-tax NPV figures from rows [1], [3], and [5].

[8]: After-tax risk-free rate, based on cumulative yield on U.S. ten-year treasury bonds since the valuation date.

[10] = [7] × (1 + [8]) ^ [9]) − [7].

[11] = [7] + [10].

Totals may not sum due to rounding.

TABLE 14: SUMMARY OF DAMAGES TO FRONTIER ARISING FROM LEASE FOR MSN 10089 (IN THOUSANDS OF DOLLARS), USING DEBT-BASED DISCOUNT RATE

Sources and Notes:

[1]: "CDB Letter of Intent," FRONTIER0011290 at 291; "2020 Framework Agreement," FRONTIER0002829 at 873. [1][C] = [1][A] − [1][B]

[2]: After-tax NPV of [1]. See Appendix table for details. [2][D] = [2][A] − [2][B]

[3]: Sum of Undiscounted Pre-Tax Rent Payments; see Appendix table for details. [3][C] = [3][A] − [3][B]

[4]: After-tax NPV of [3]. See Appendix table for details. [4][D] = [4][A] − [4][B]

[5]: Calculated based on provisions in lease documents. [5][C] = [5][A] − [5][B]

[6]: After-tax NPV of [5]. See Appendix for details. [6][D] = [6][A] − [6][B]

[7]: Sum of the differences in after-tax NPV figures from rows [1], [3], and [5].

[8]: After-tax risk-free rate, based on cumulative yield on U.S. ten-year treasury bonds since the valuation date.

[10] = [7] × (1 + [8]) ^ [9]) − [7]

[11] = [7] + [10]

Totals may not sum due to rounding.

TABLE 15: SUMMARY OF DAMAGES TO FRONTIER ARISING FROM LEASE FOR MSN 10384 (IN THOUSANDS OF DOLLARS), USING DEBT-BASED DISCOUNT RATE

Sources and Notes:

[1]: "JSA Letter of Intent," FRONTIER0012136 at 137; "2020 Framework Agreement," FRONTIER0002829 at 873. [1][C] = [1][A] − [1][B]

[2]: After-tax NPV of [1]. See Appendix table for details. [2][D] = [2][A] − [2][B]

[3]: Sum of Undiscounted Pre-Tax Rent Payments; See Appendix table for details. [3][C] = [3][A] − [3][B]

[4]: After-tax NPV of [3]. See Appendix table for details. [4][D] = [4][A] − [4][B]

[5]: Calculated based on provisions in lease documents. [5][C] = [5][A] − [5][B]

[6]: After-tax NPV of [5]. See Appendix for details. [6][D] = [6][A] − [6][B]

[7]: Sum of the differences in after-tax NPV figures from rows [1], [3], and [5].

[8]: After-tax risk-free rate, based on cumulative yield on U.S. ten-year treasury bonds since the valuation date.

[10] = [7] × (1 + [8]) ^ [9]) − [7]

[11] = [7] + [10]

Totals may not sum due to rounding.

TABLE 16: SUMMARY OF DAMAGES TO FRONTIER ARISING FROM LEASE FOR MSN 10452 (IN THOUSANDS OF DOLLARS), USING DEBT-BASED DISCOUNT RATE

[redacted]

Sources and Notes:

[1]: "JSA Letter of Intent," FRONTIER0012136 at 137; "2020 Framework Agreement," FRONTIER0002829 at 873. [1][C] = [1][A] − [1][B].

[2]: After-tax NPV of [1]. See Appendix table for details. [2][D] = [2][A] − [2][B].

[3]: Sum of Undiscounted Pre-Tax Rent Payments; see Appendix table for details. [3][C] = [3][A] − [3][B].

[4]: After-tax NPV of [3]. See Appendix table for details. [4][D] = [4][A] − [4][B].

[5]: Calculated based on provisions in lease documents. [5][C] = [5][A] − [5][B].

[6]: After-tax NPV of [5]. See Appendix for details. [6][D] = [6][A] − [6][B].

[7]: Sum of the differences in after-tax NPV figures from rows [1], [3], and [5].

[8]: After-tax risk-free rate, based on cumulative yield on U.S. ten-year treasury bonds since the valuation date.

[10] = [7] × (1 + [8]) ^ [9]) − [7].

[11] = [7] + [10].

Totals may not sum due to rounding.

VI. CONCLUSIONS

69. Table 17 summarizes the information presented above, and calculates the total injury to Frontier from AMCK's termination of the Framework Agreement, and the amount that should be paid to Frontier to compensate it fully for the economic injury it has suffered.

TABLE 17: PRESENT VALUE OF DAMAGES (IN THOUSANDS OF DOLLARS), AS OF SEPTEMBER 9, 2022

Aircraft		Eventual Lessor	Net Present Value of Increased Costs to Frontier
MSN 9549	[1]	CDB	$6,870
MSN 10031	[2]	CDB	$6,870
MSN 10089	[3]	CDB	$6,946
MSN 10384	[4]	JSA	$6,624
MSN 10452	[5]	JSA	$6,626
After-Tax Value of Payment Required to Make Frontier Whole	[6]		$33,936
Tax Rate	[7]		22.8%
Taxes to be Paid on Damage Award	[8]		$10,005
Pre-Tax Damages	[9]		$43,941

Sources and Notes:
[1] − [5]: See Table 12, Table 13, Table 14, Table 15, and Table 16.
[6]: Sum of [1] through [5].
[7]: Tax Rate. See calculation of Tax Rate table.
[8] = [6] × [7] / (1 − [7]).
[9] = [6] + [8].

70. As I discussed above, all of my damages calculations have been carried out on an after-tax basis, and are designed to compute the after-tax injury Frontier has suffered. Any damage award will be taxable, and the taxes paid on the award must thus be taken into account if Frontier is to be fully compensated for its injury. The correct way to do this is to divide Frontier's after-tax damages by one minus its tax rate. Table 17 performs this calculation.

71. Based on these calculations and the economic reasoning discussed above, I conclude that the total amount that must be paid to Frontier in order to compensate it for its injury and make it whole is $43.941 million.

72. Table 18 presents the results of an alternative calculation that relies upon a WACC based discount. In the event that the Court determines that a WACC-based discount rate is appropriate, the total amount that must be paid to Frontier in order to compensate it for its injury and make it whole is $35.982 million.

TABLE 18: ALTERNATE DAMAGES SUMMARY BASED ON WACC (IN THOUSANDS OF DOLLARS), AS OF SEPTEMBER 9, 2022

Aircraft		Eventual Lessor	Net Present Value of Increased Costs to Frontier
MSN 9549	[1]	CDB	$5,726
MSN 10031	[2]	CDB	$5,726
MSN 10089	[3]	CDB	$5,783
MSN 10384	[4]	JSA	$5,287
MSN 10452	[5]	JSA	$5,266
After-Tax Value of Payment Required to Make Frontier Whole	[6]		$27,789
Tax Rate	[7]		22.8%
Taxes to be Paid on Damage Award	[8]		$8,193
Pre-Tax Damages	[9]		$35,982

Sources and Notes:

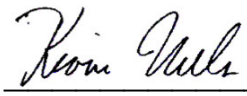
[1] − [5]: See Appendix Exhibits 6, 8, 10, 12, and 14.

[6]: Sum of [1] through [5].

[7]: Tax Rate. See calculation of Tax Rate table.

[8] = [6] × [7] / (1 − [7]).

[9] = [6] + [8].



St. Petersburg, FL
September 9, 2022

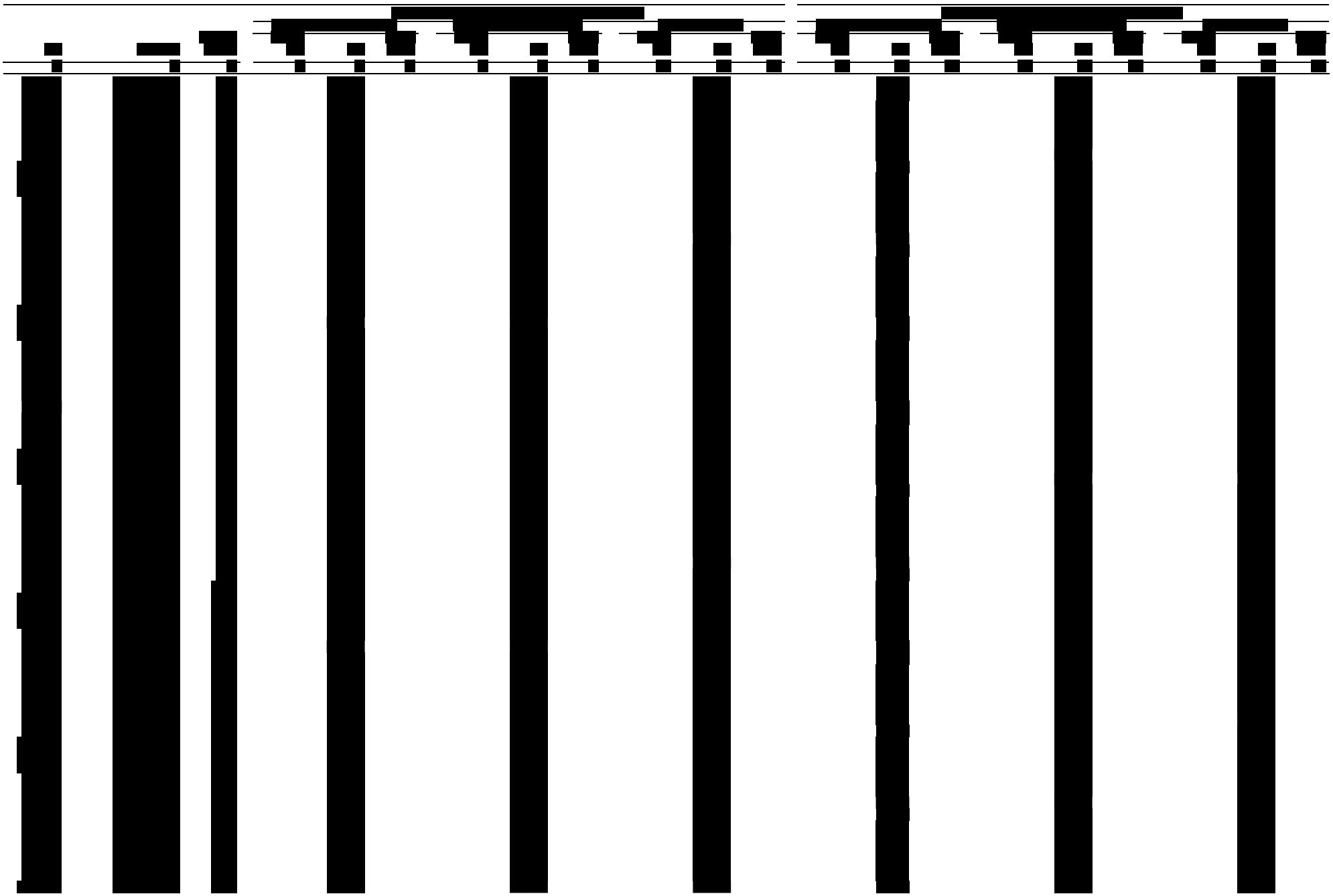
Appendix 1: Exhibits 1 – 15

Exhibits 1 – 15, whose titles are provided below, have been marked Attorney's Eyes Only.

1. Cash Flows and Details of NPV Calculation for MSN 9549
2. Cash Flows and Details of NPV Calculation for MSN 10031
3. Cash Flows and Details of NPV Calculation for MSN 10089
4. Cash Flows and Details of NPV Calculation for MSN 10384
5. Cash Flows and Details of NPV Calculation for MSN 10452
6. Summary of Net Present Value Calculation – MSN 9549, Using Frontier WACC
7. Cash Flows and Details of Alternate NPV Calculation for MSN 9549, Using Frontier WACC
8. Summary of Net Present Value Calculation – MSN 10031, Using Frontier WACC
9. Cash Flows and Details of Alternate NPV Calculation for MSN 10031, Using Frontier WACC
10. Summary of Net Present Value Calculation – MSN 10089, Using Frontier WACC
11. Cash Flows and Details of Alternate NPV Calculation for MSN 10089, Using Frontier WACC
12. Summary of Net Present Value Calculation – MSN 10384, Using Frontier WACC
13. Cash Flows and Details of Alternate NPV Calculation for MSN 10384, Using Frontier WACC
14. Summary of Net Present Value Calculation – MSN 10452, Using Frontier WACC
15. Cash Flows and Details of Alternate NPV Calculation for MSN 10452, Using Frontier WACC

Exhibit 1: Cash Flows and Details of NPV Calculation for MSN 9549

Valuation Date: May 8, 2020



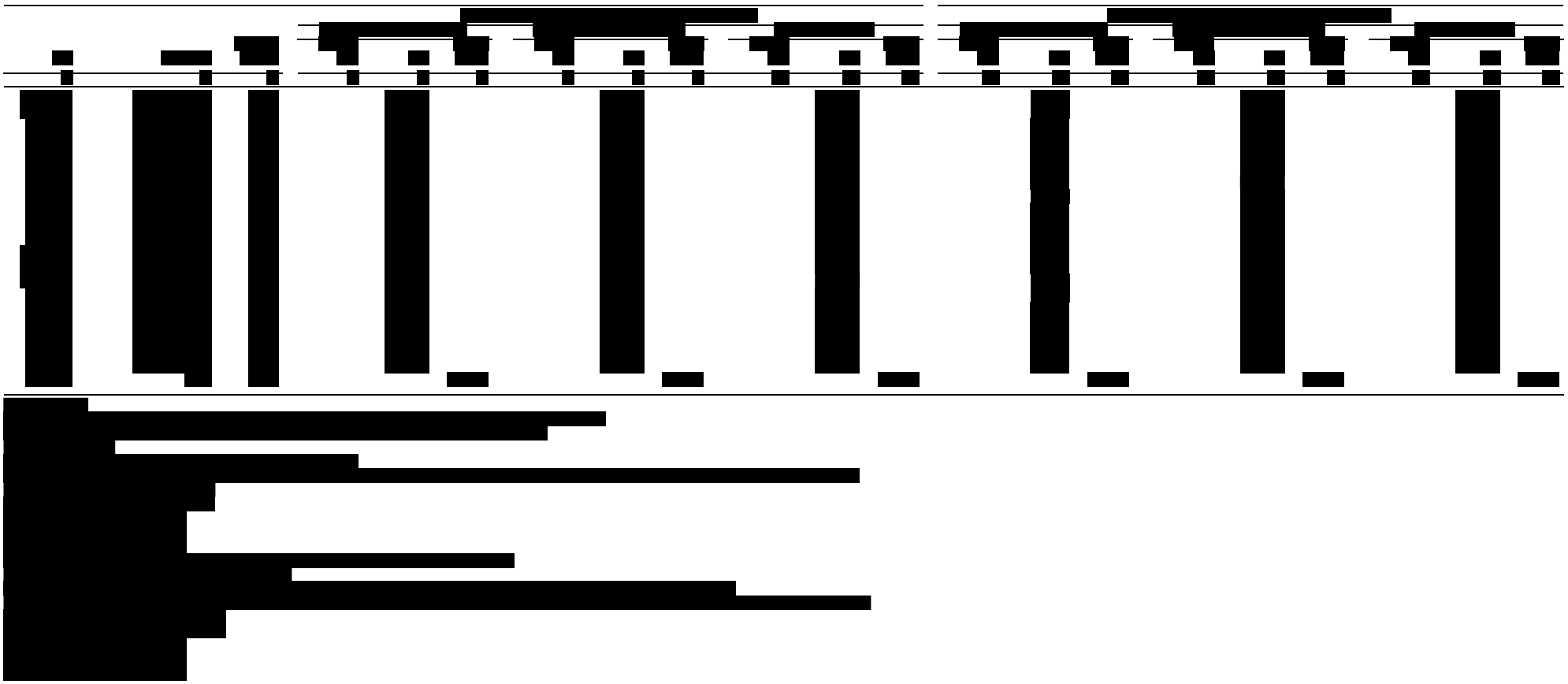
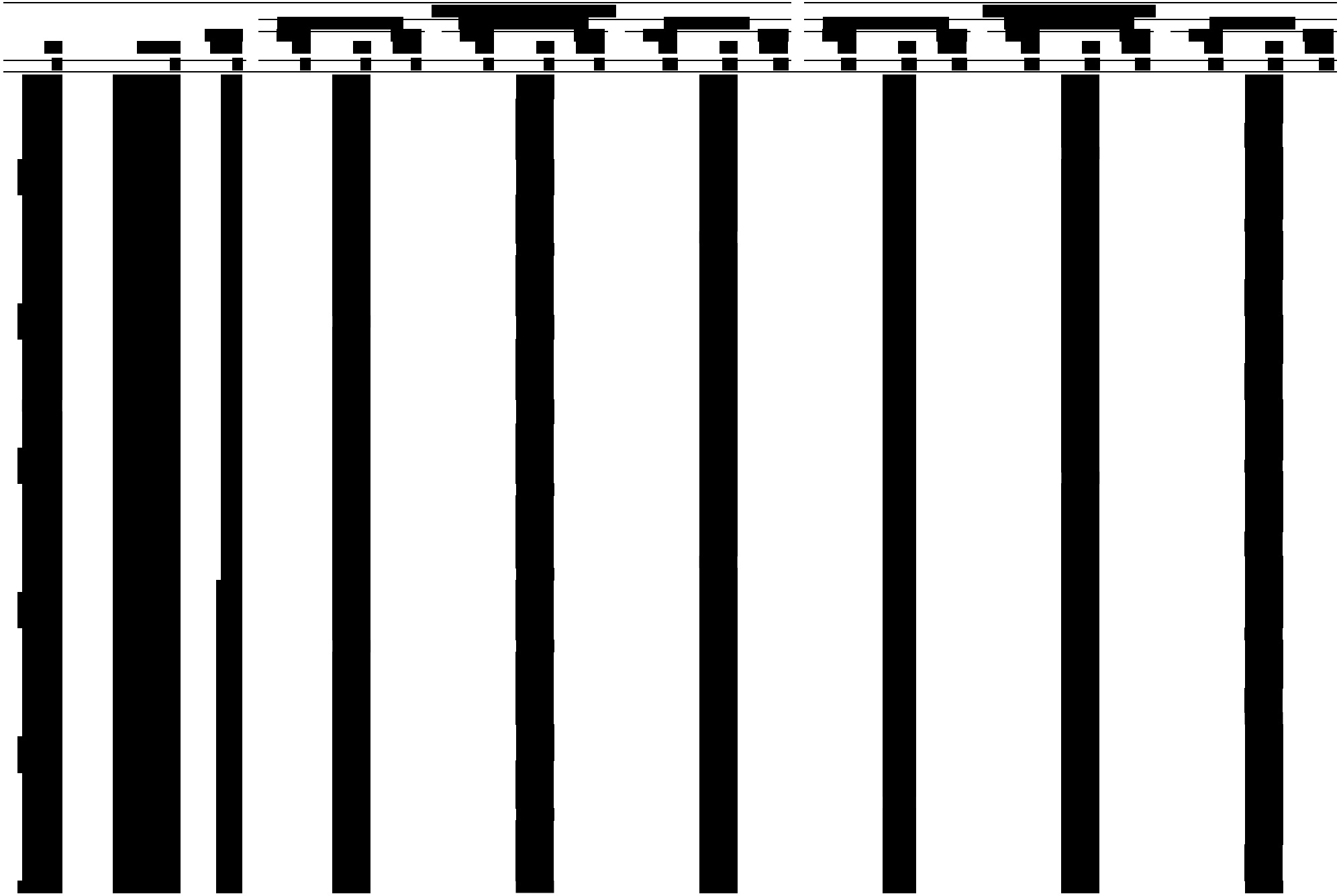


Exhibit 2: Cash Flows and Details of NPV Calculation for MSN 10031

Valuation Date: May 8, 2020



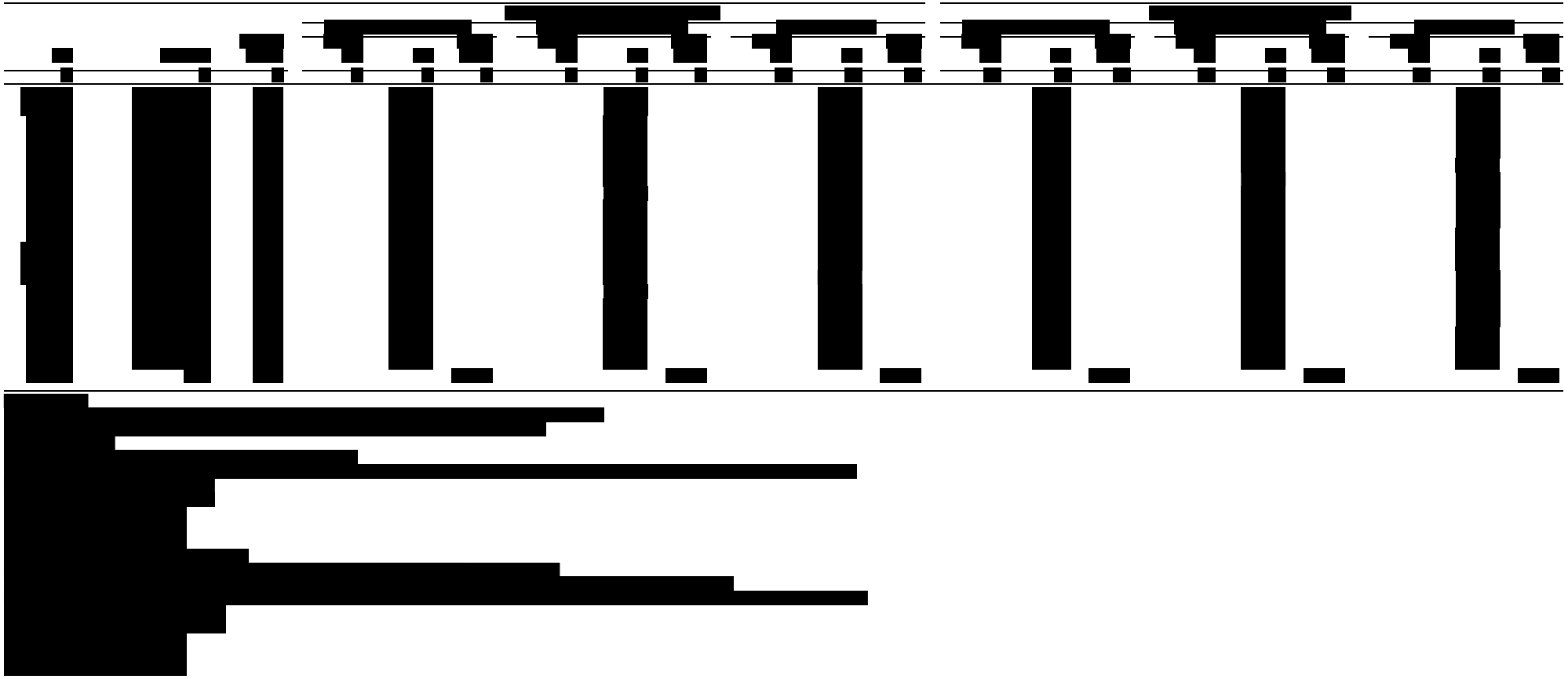
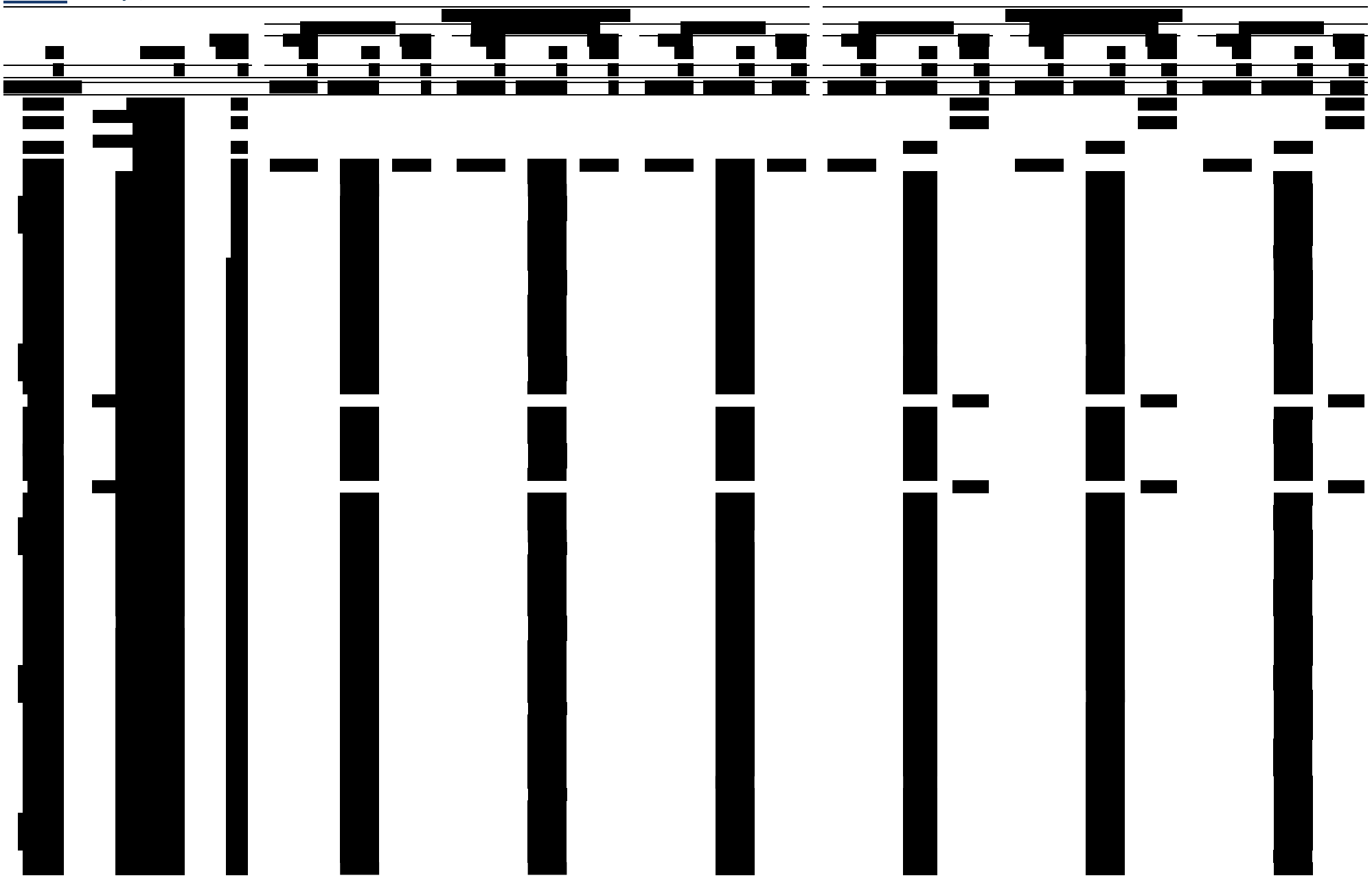
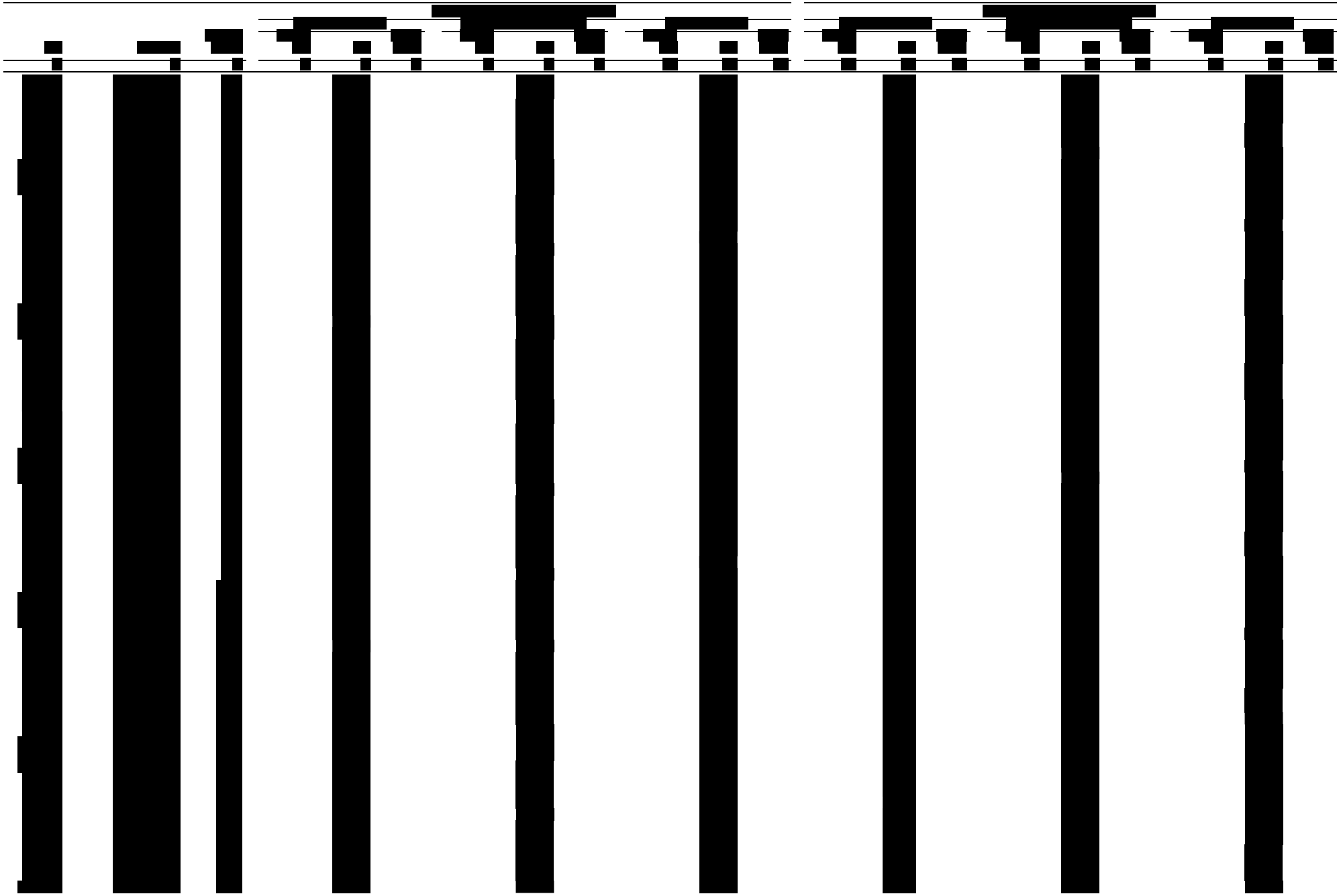


Exhibit 3: Cash Flows and Details of NPV Calculation for MSN 10089

Valuation Date: May 8, 2020





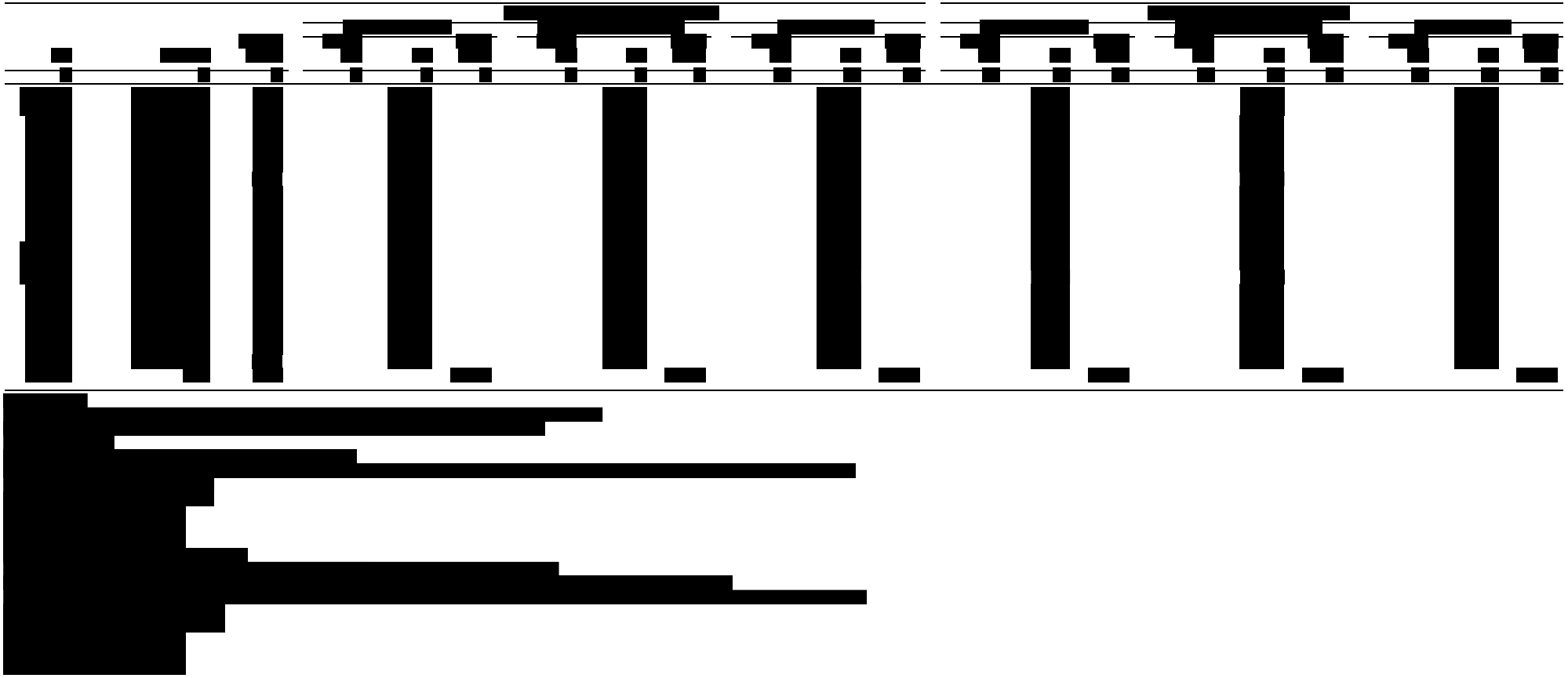
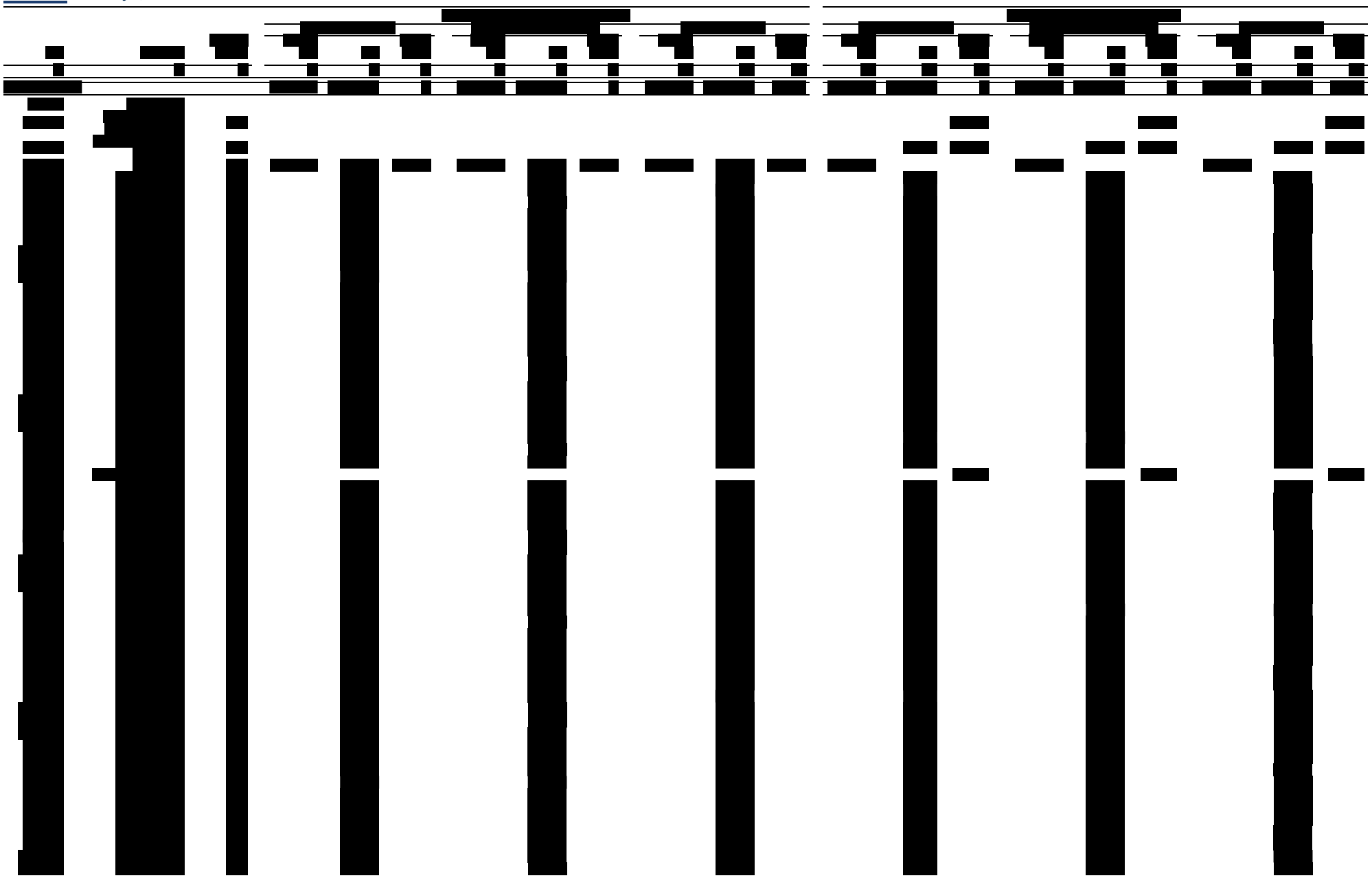
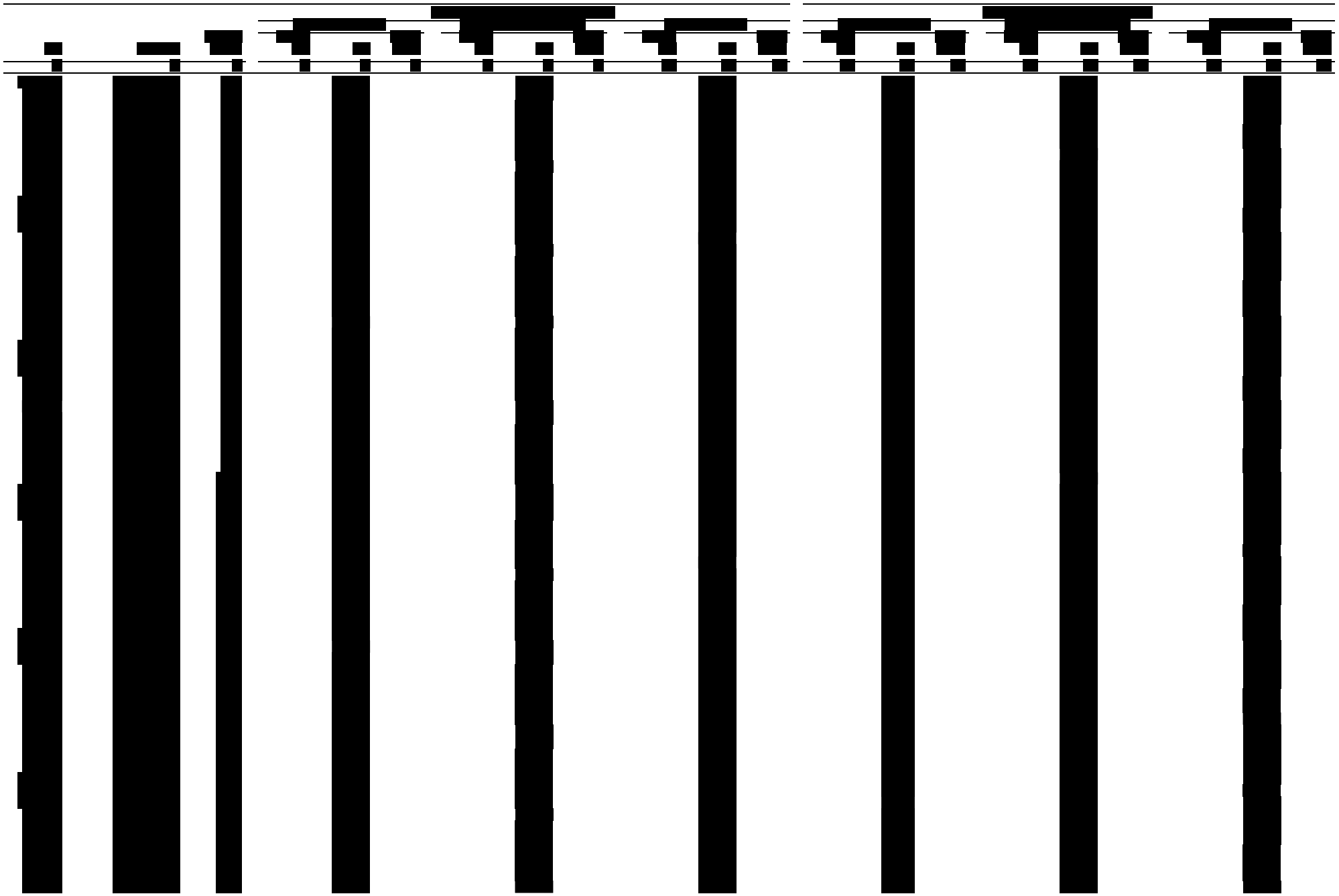


Exhibit 4: Cash Flows and Details of NPV Calculation for MSN 10384

Valuation Date: May 8, 2020





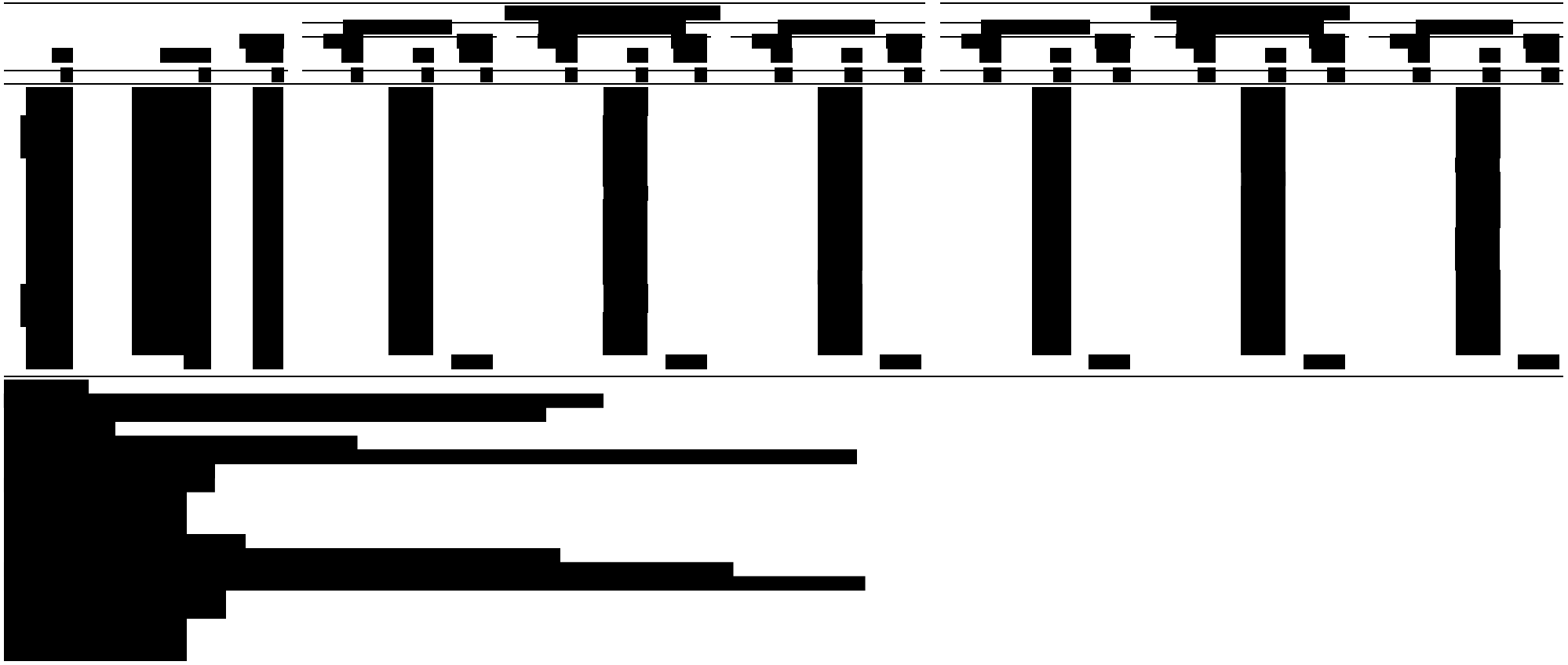
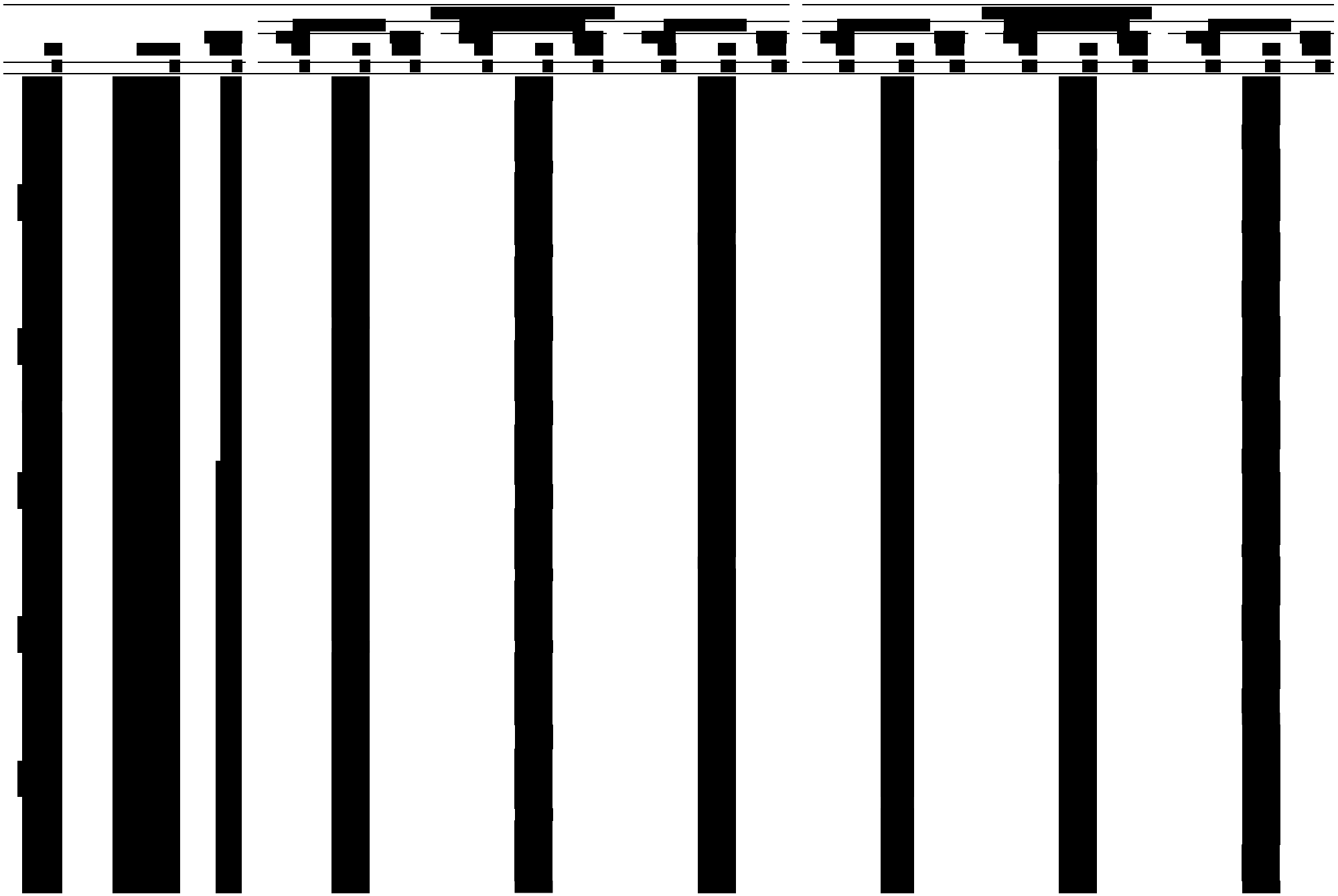


Exhibit 5: Cash Flows and Details of NPV Calculation for MSN 10452
Valuation Date: May 8, 2020



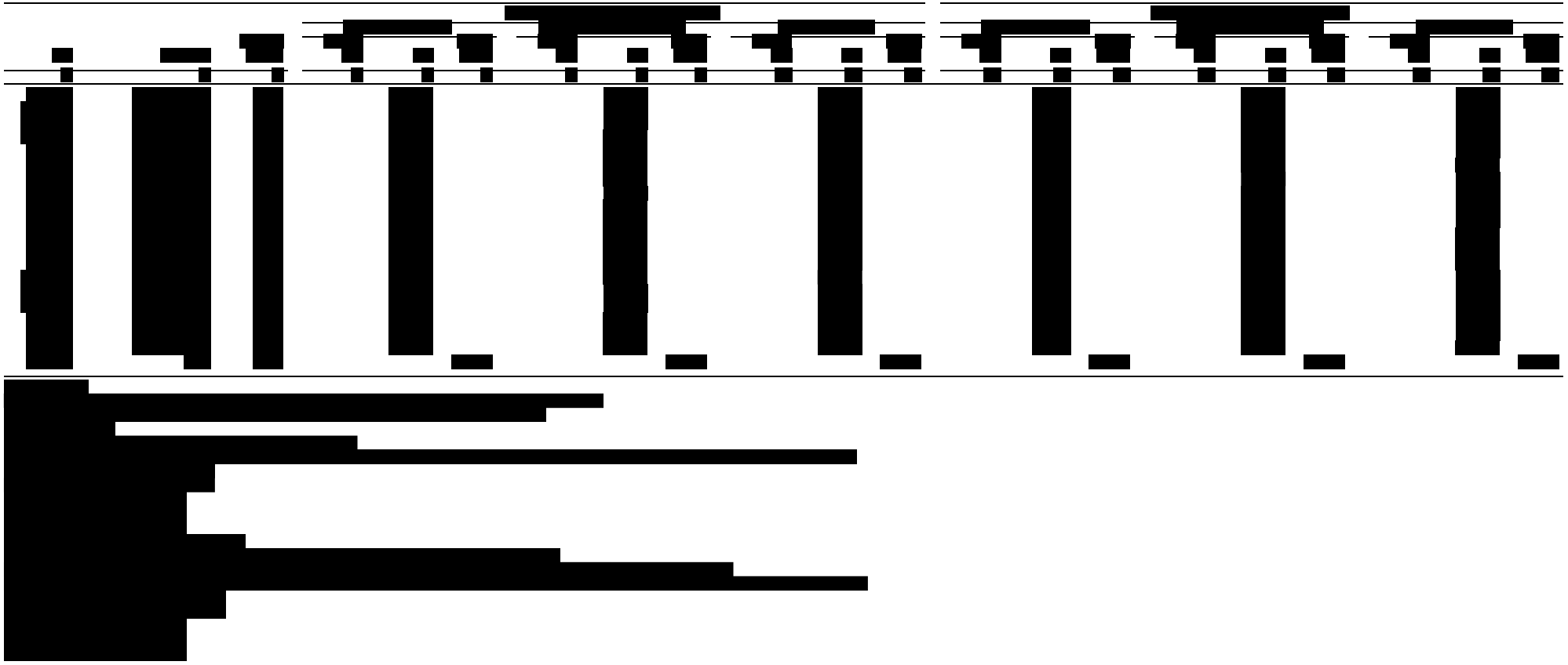


Exhibit 6: Summary of Net Present Value Calculation - MSN 9549, Using Frontier WACC

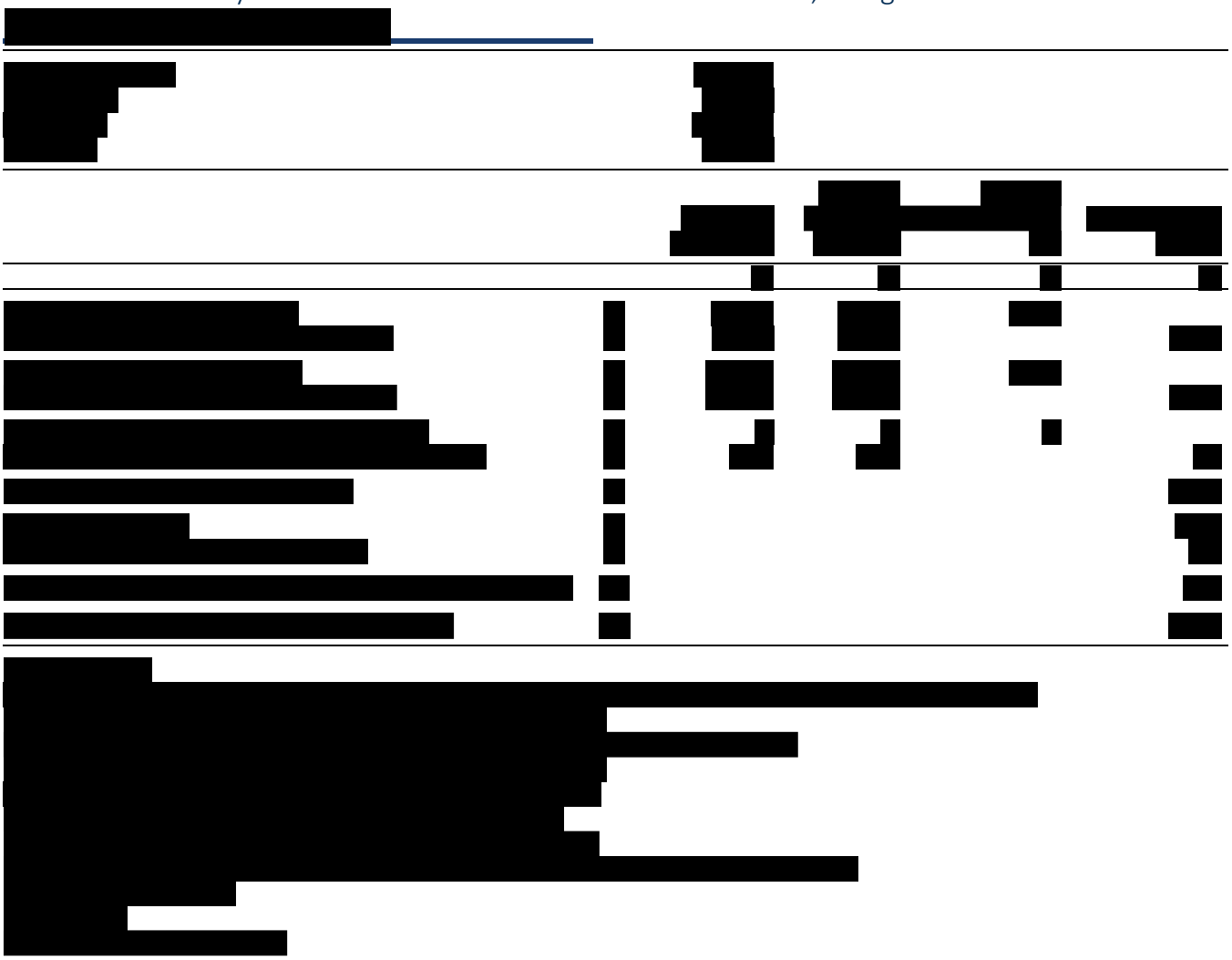
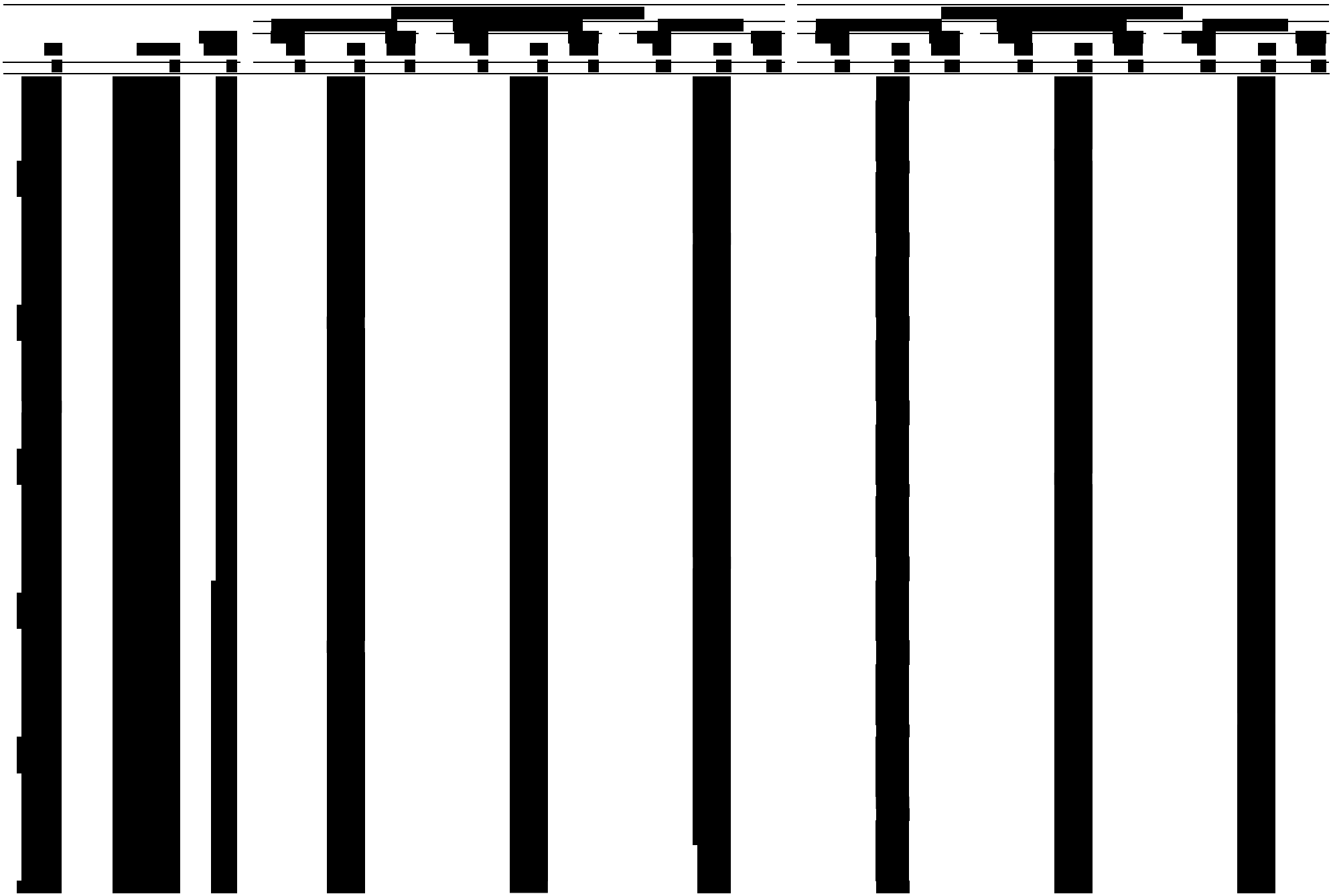


Exhibit 7: Cash Flows and Details of Alternate NPV Calculation for MSN 9549, Using Frontier WACC

Valuation Date: May 8, 2020



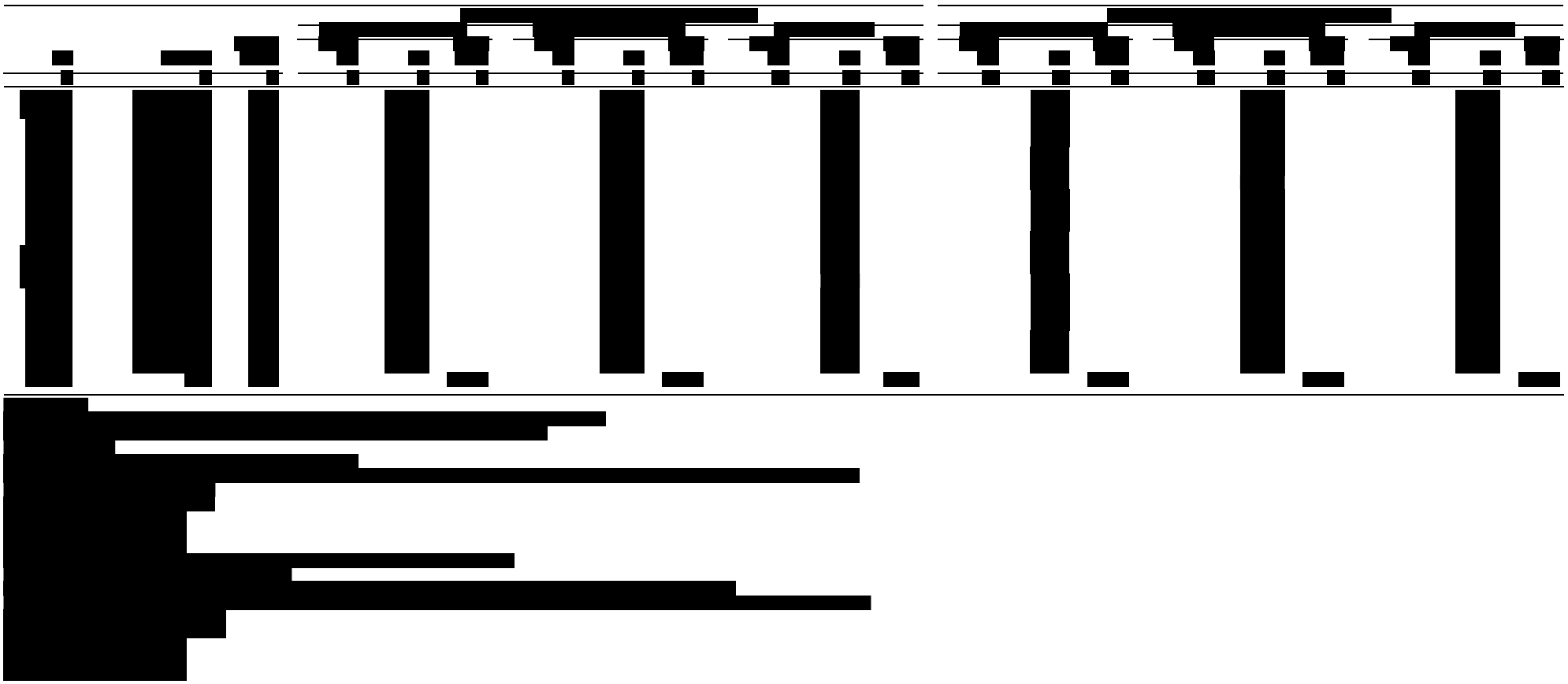


Exhibit 8: Summary of Net Present Value Calculation - MSN 10031, Using Frontier WACC

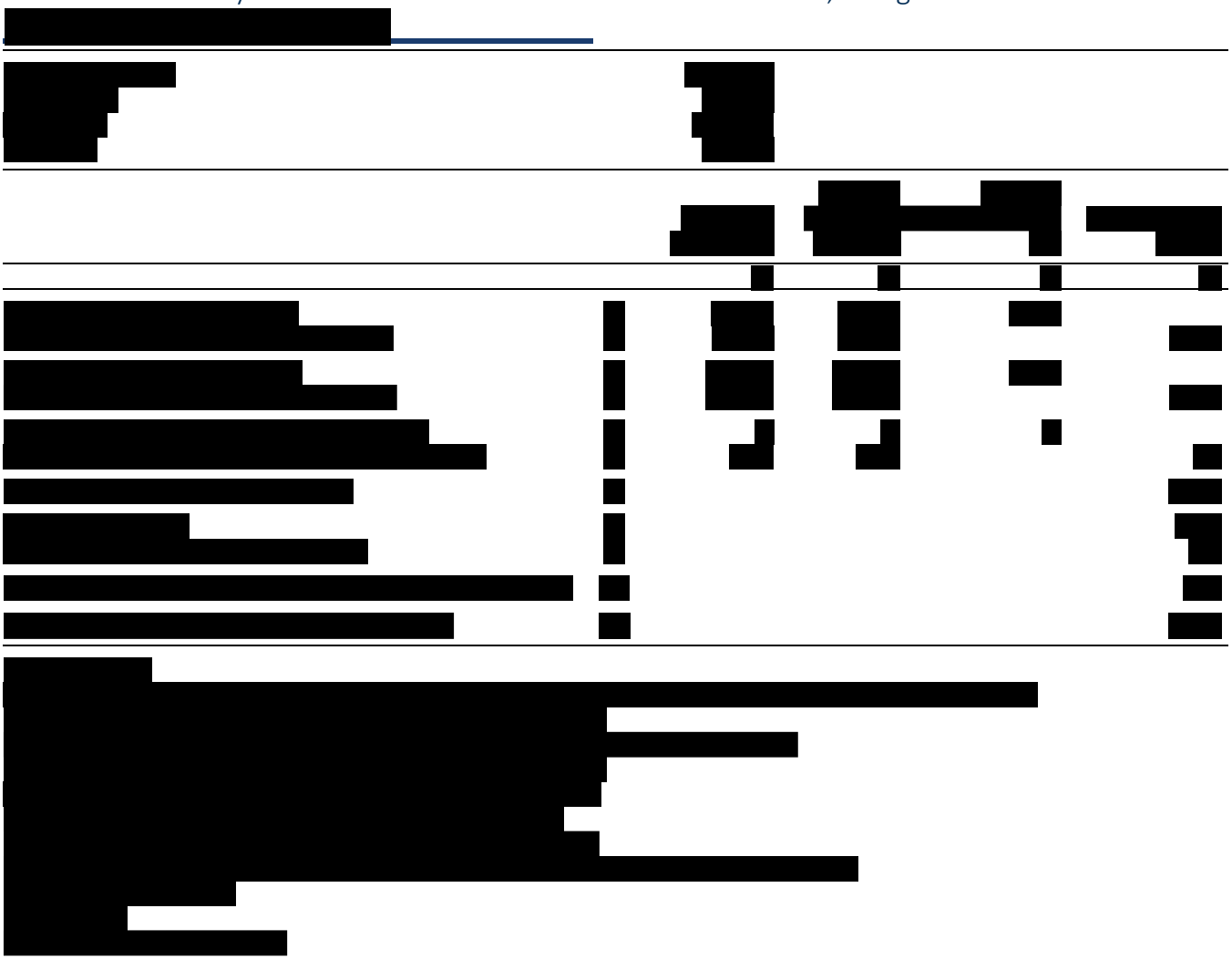
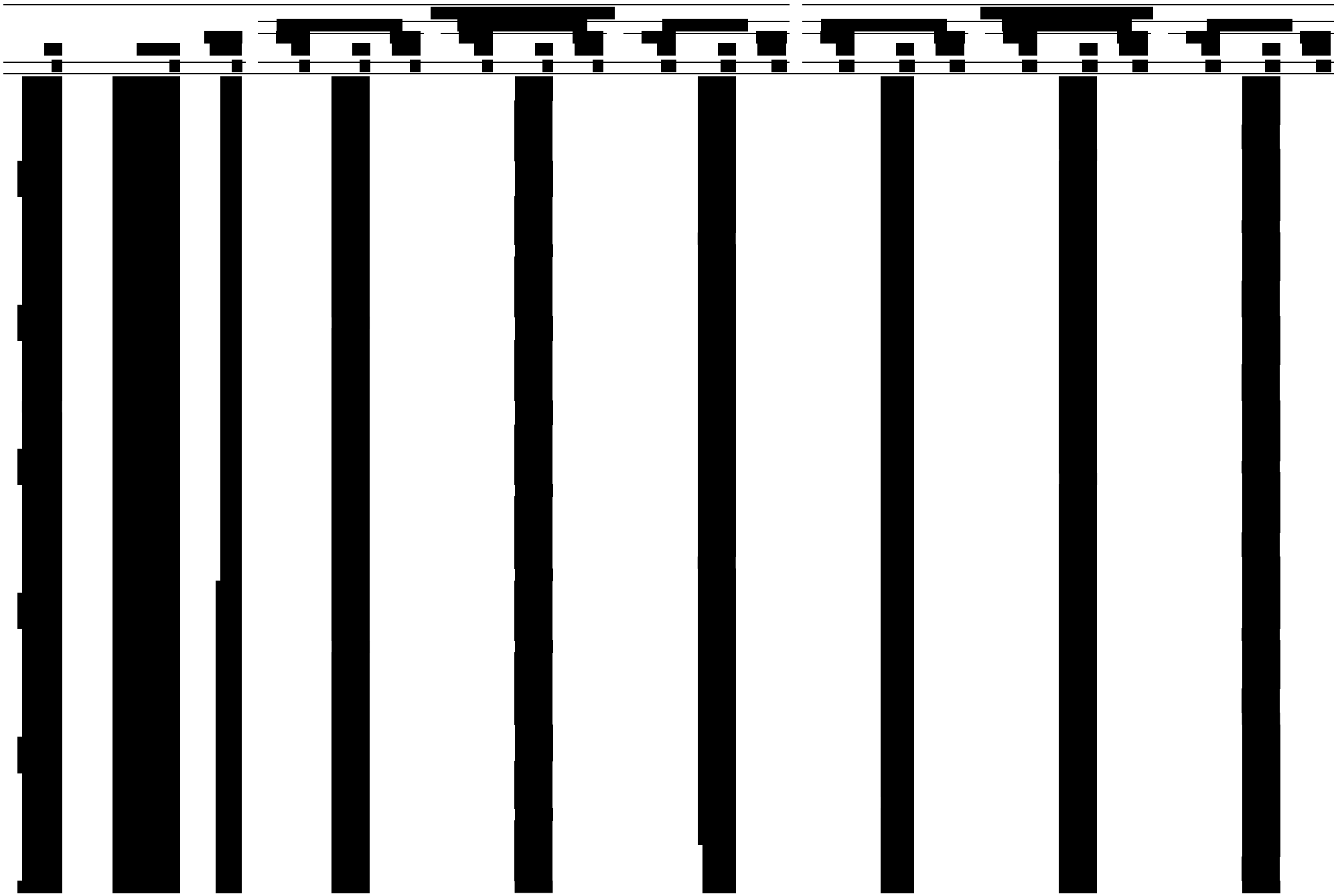


Exhibit 9: Cash Flows and Details of Alternate NPV Calculation for MSN 10031, Using Frontier WACC

Valuation Date: May 8, 2020



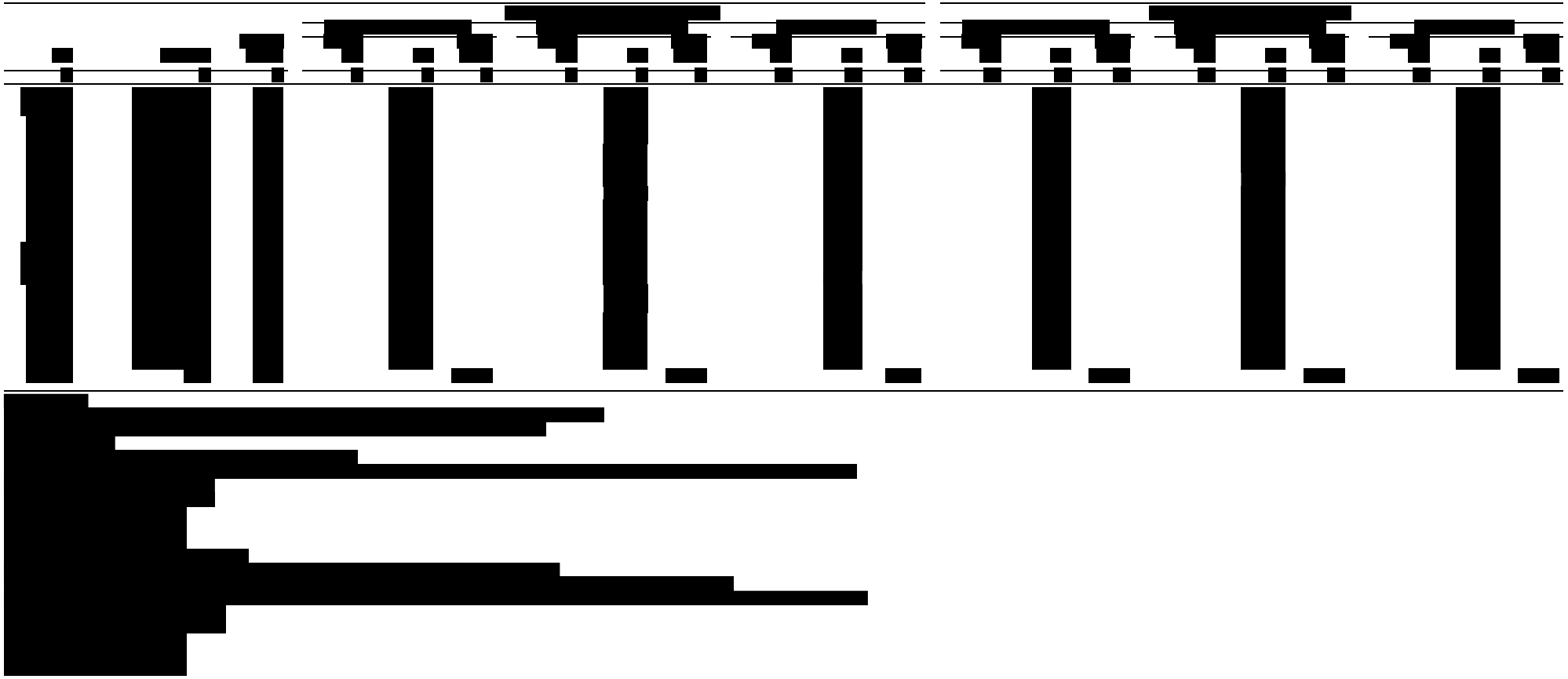


Exhibit 10: Summary of Net Present Value Calculation - MSN 10089, Using Frontier WACC

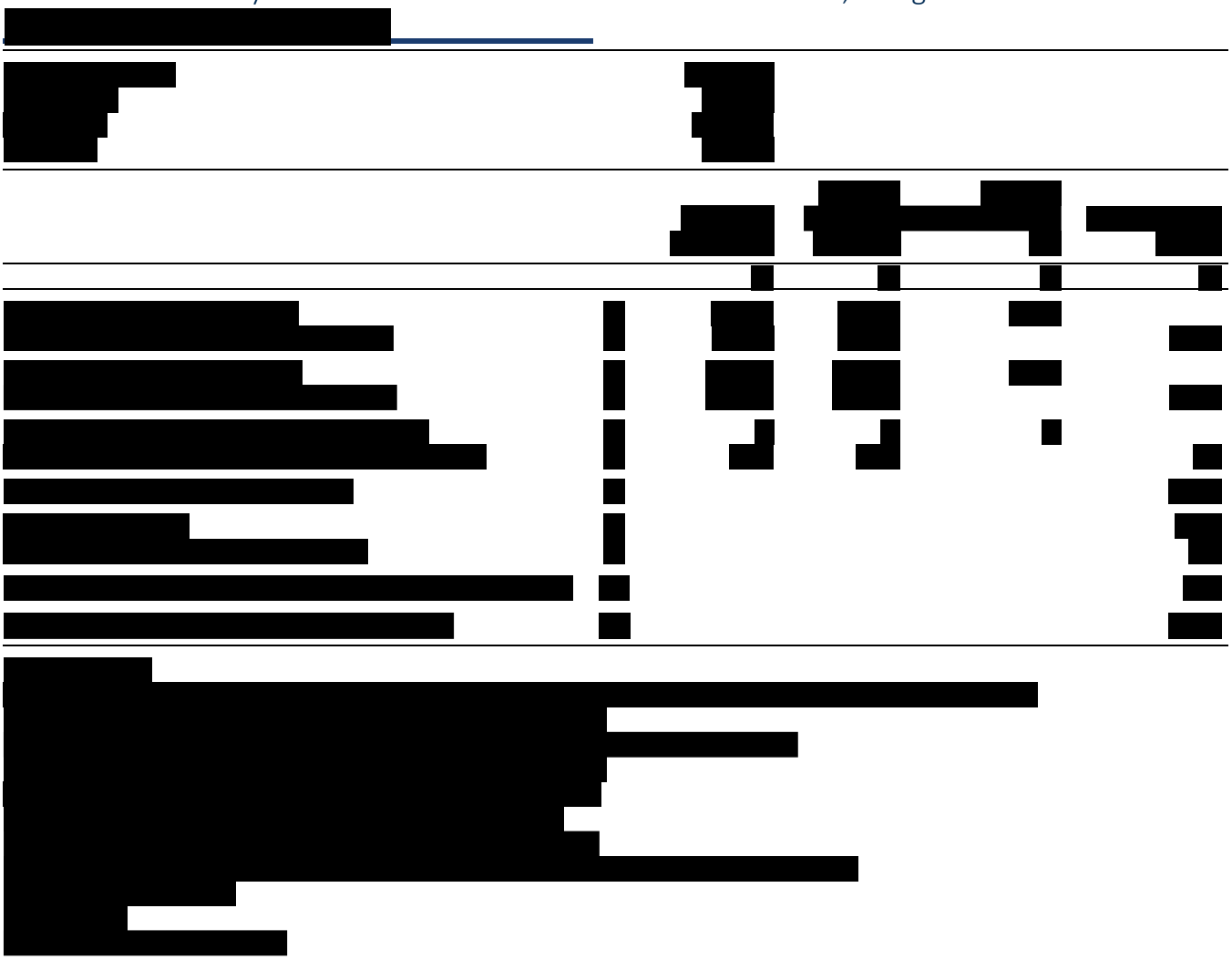
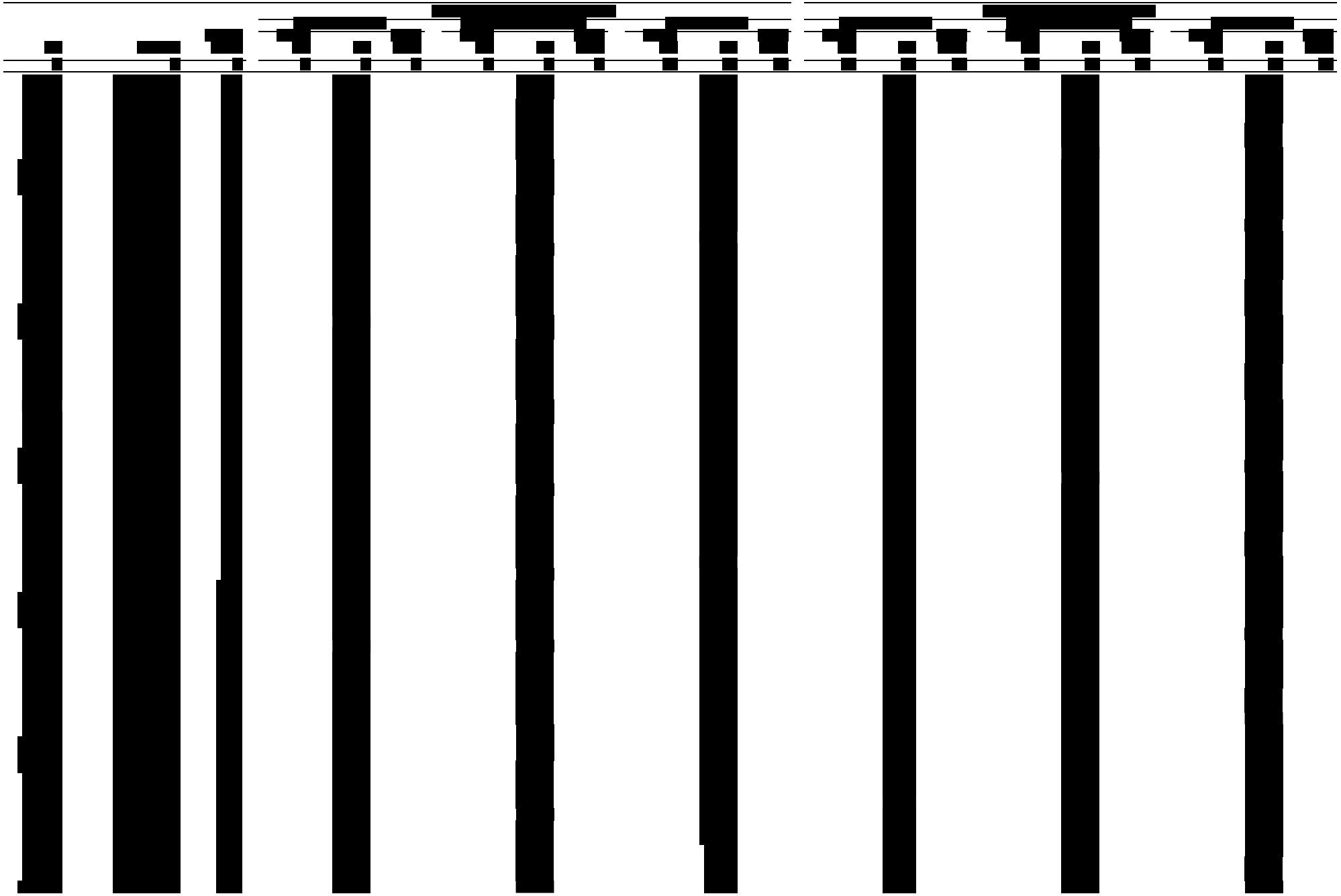


Exhibit 11: Cash Flows and Details of Alternate NPV Calculation for MSN 10089, Using Frontier WACC

Valuation Date: May 8, 2020



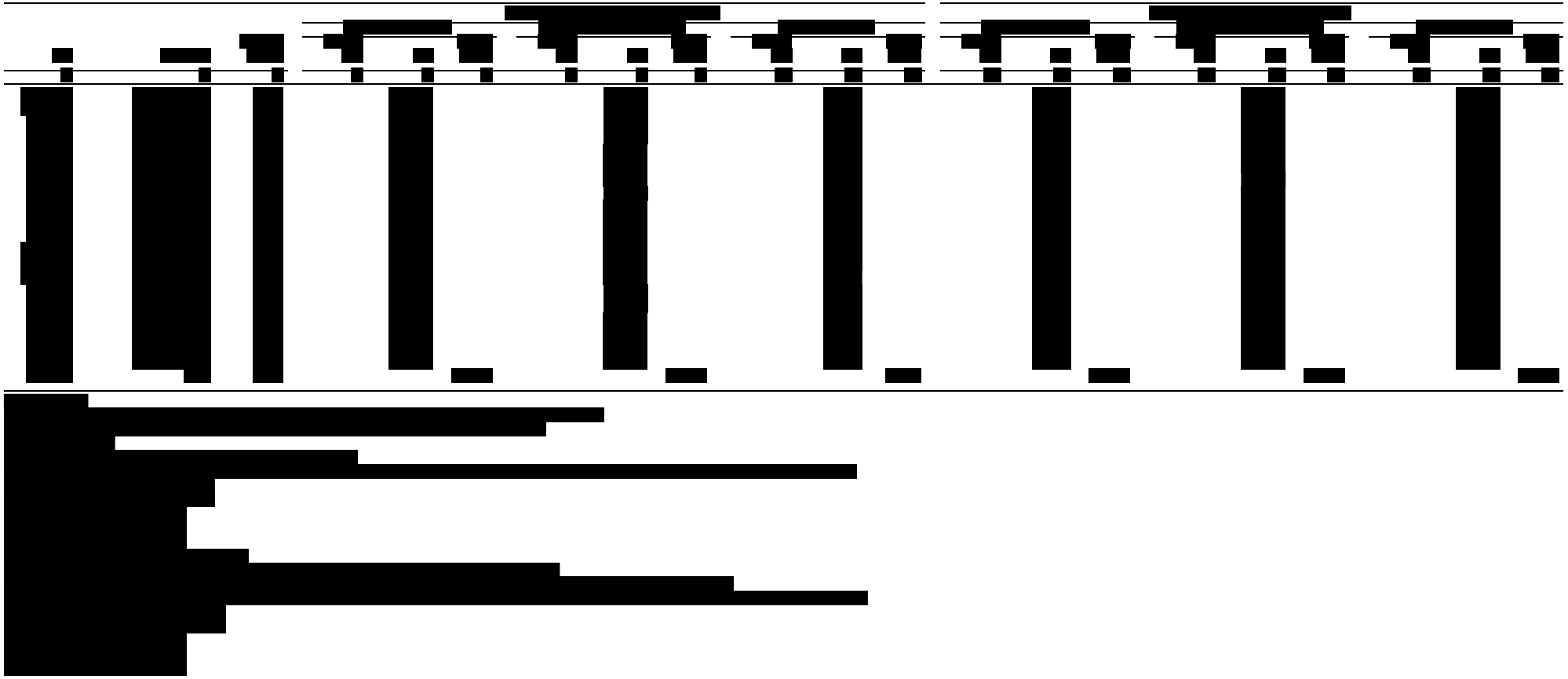


Exhibit 12: Summary of Net Present Value Calculation - MSN 10384, Using Frontier WACC

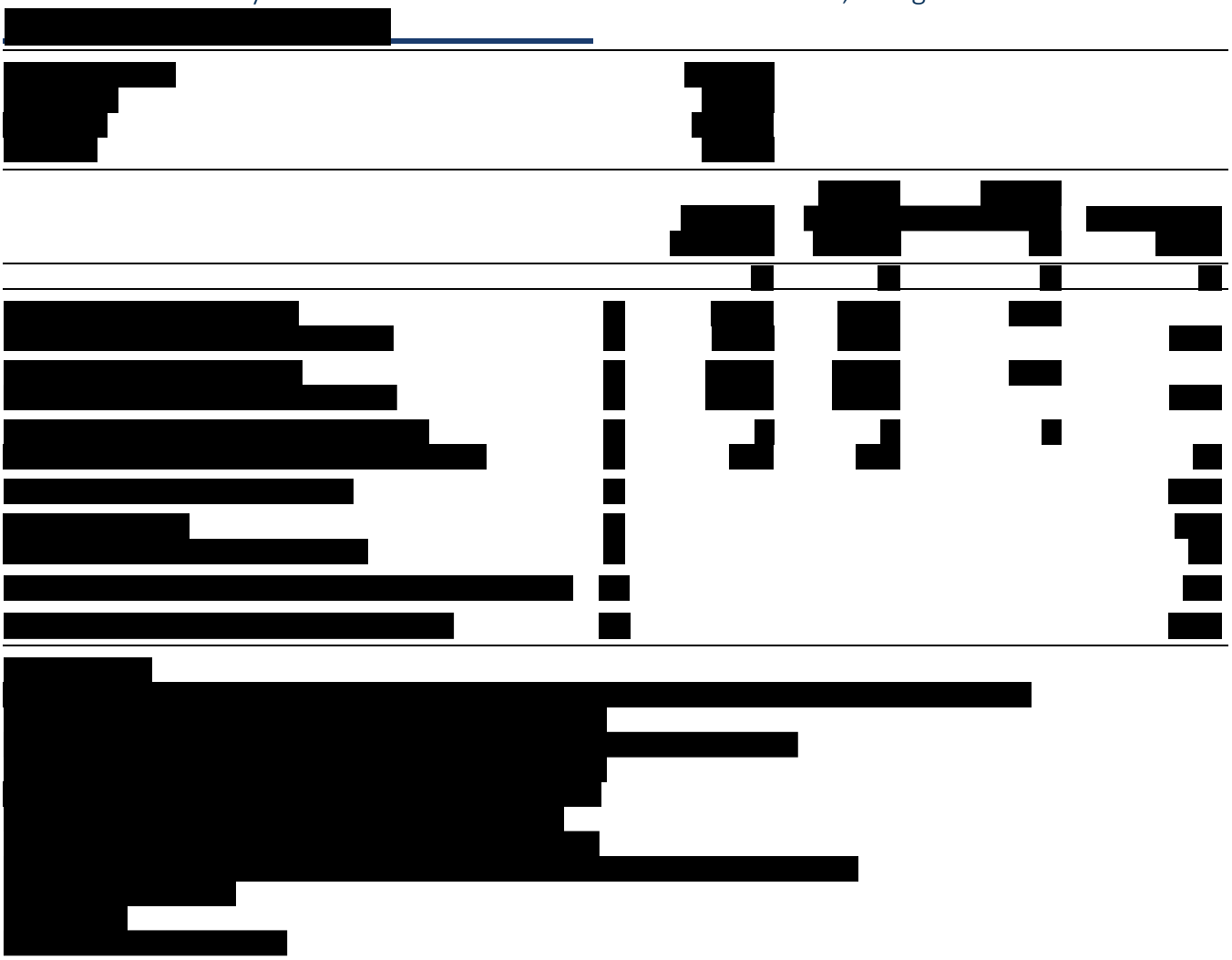
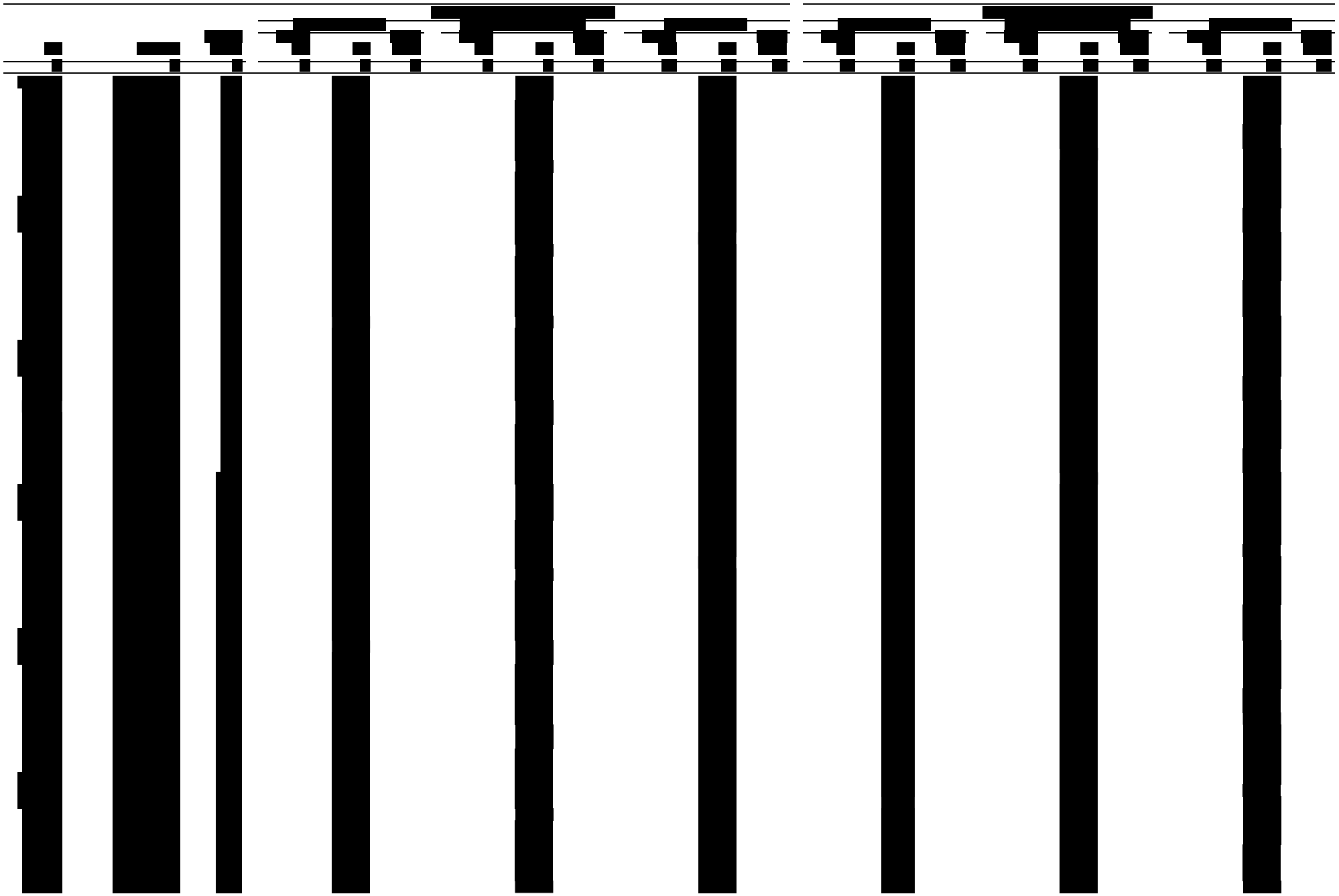


Exhibit 13: Cash Flows and Details of Alternate NPV Calculation for MSN 10384, Using Frontier WACC

Valuation Date: May 8, 2020



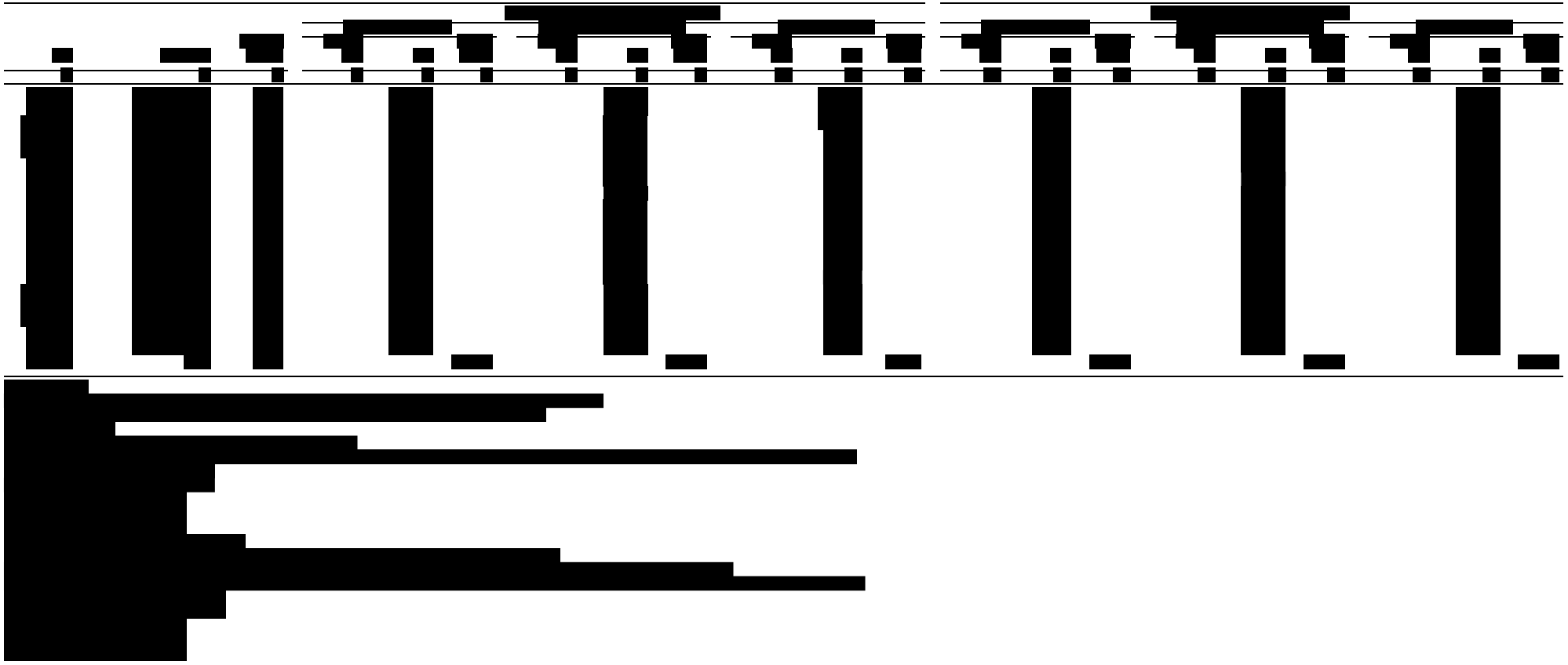


Exhibit 14: Summary of Net Present Value Calculation - MSN 10452, Using Frontier WACC

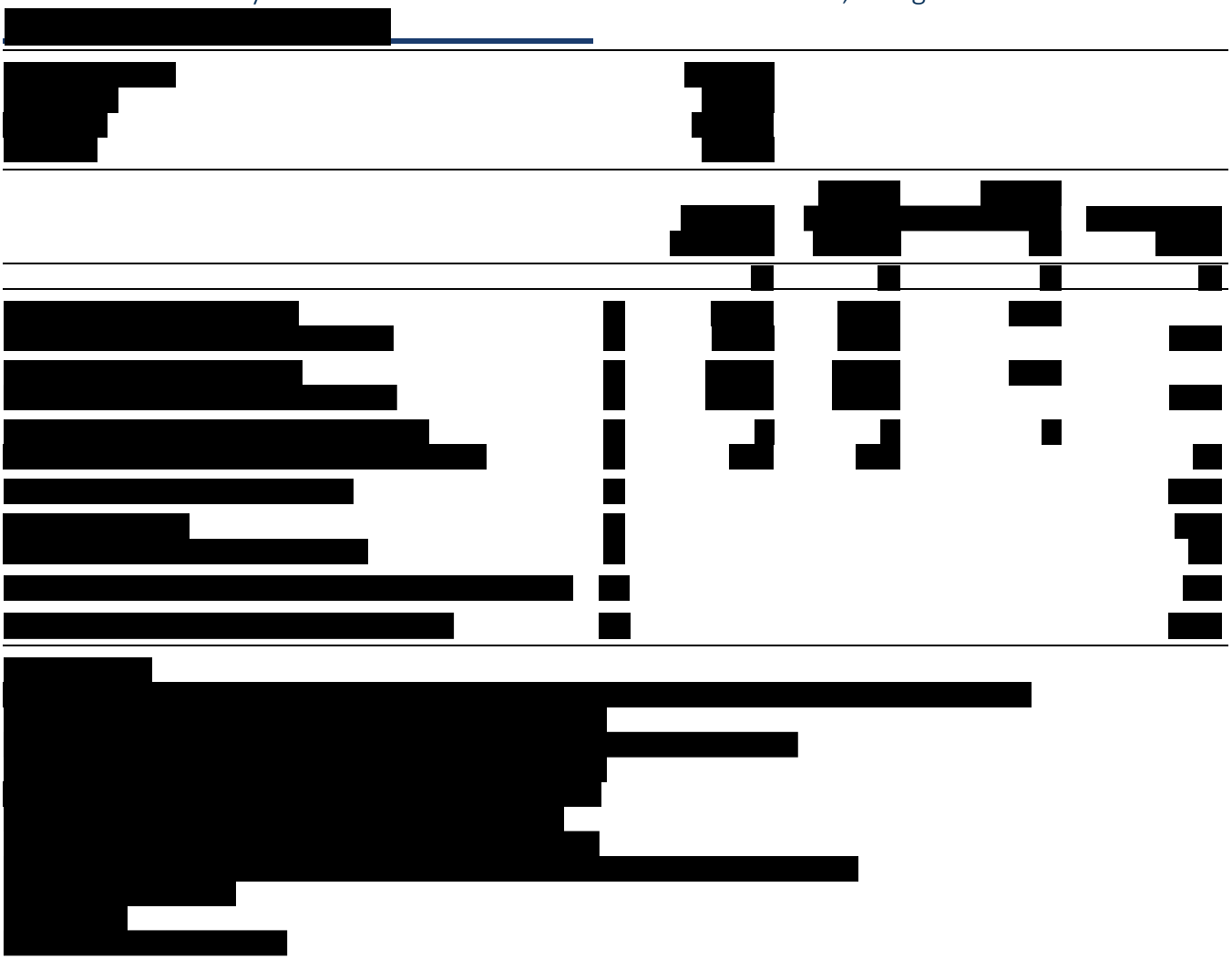
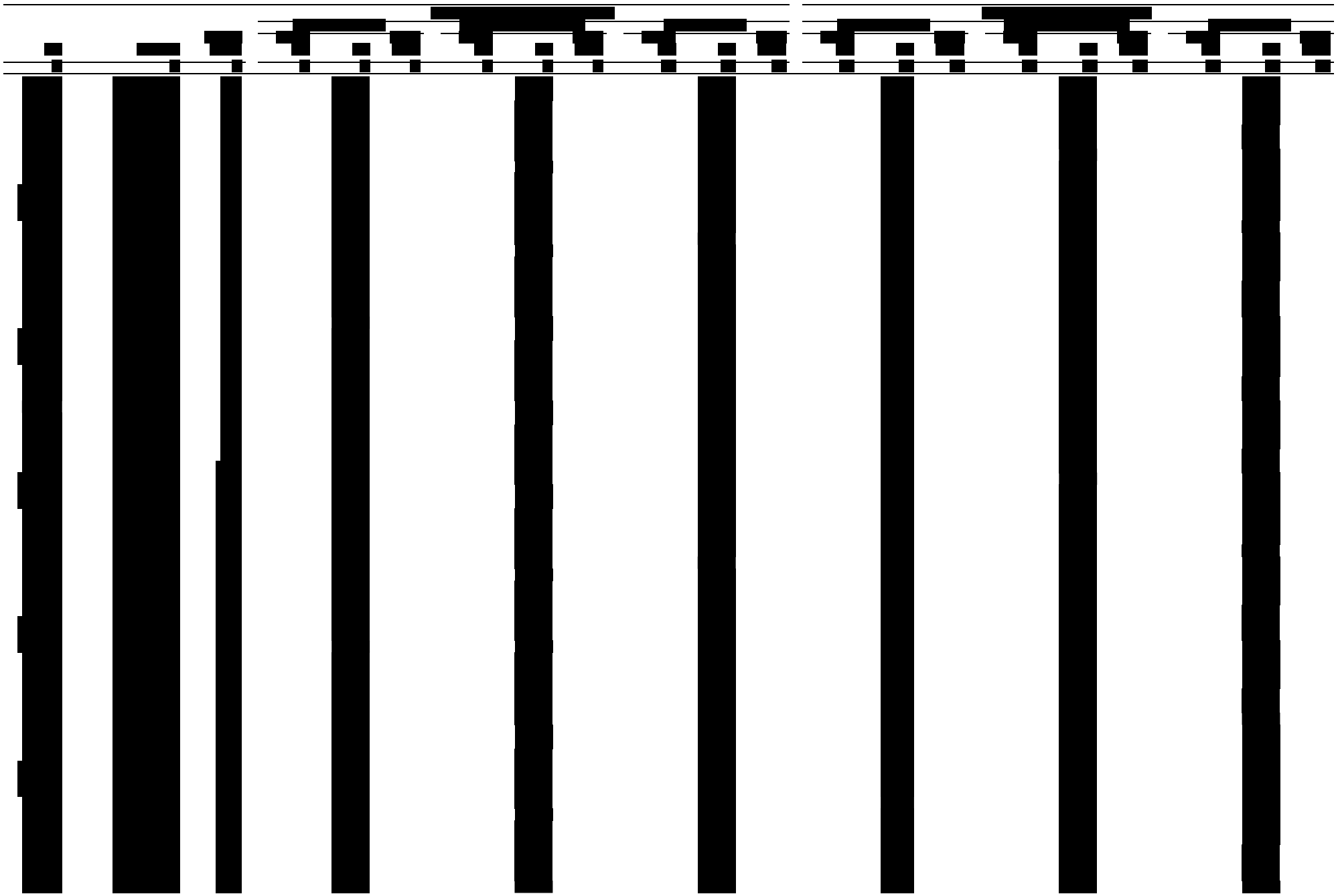
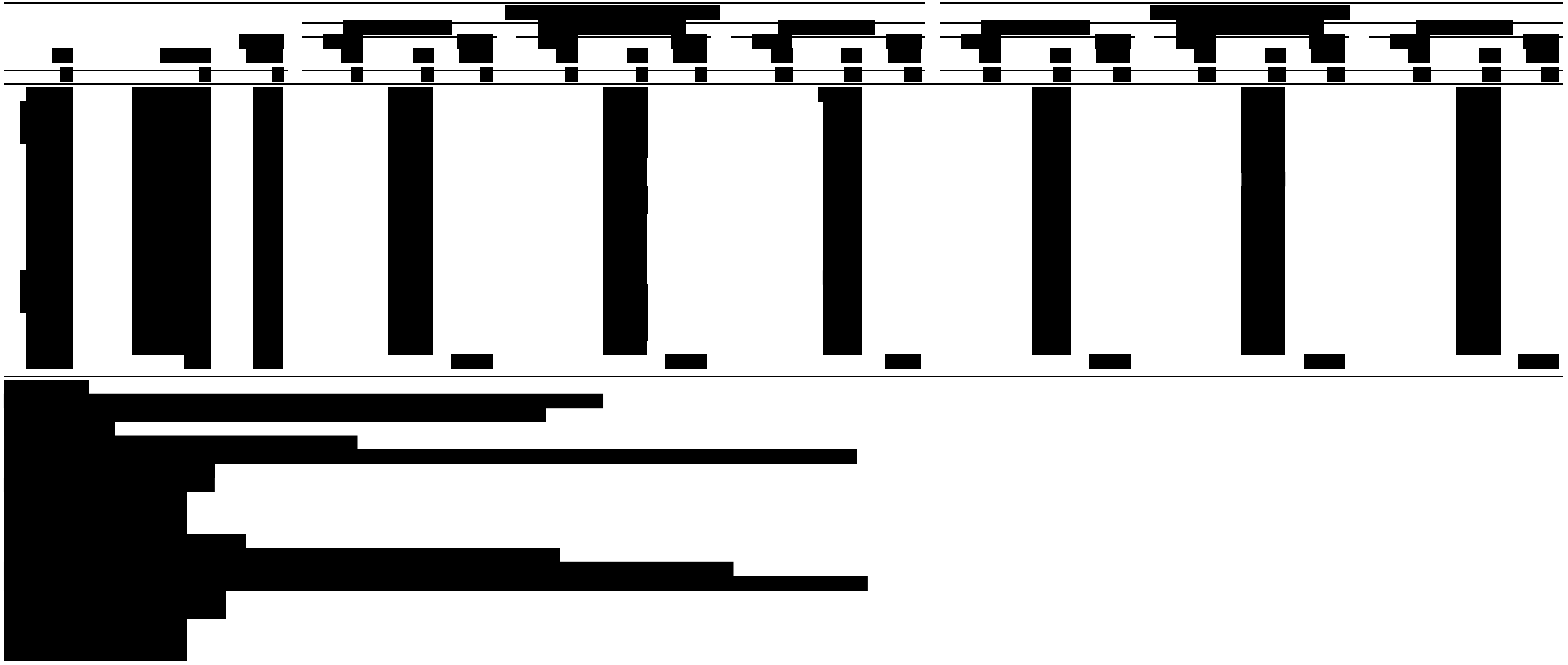


Exhibit 15: Cash Flows and Details of Alternate NPV Calculation for MSN 10452, Using Frontier WACC

Valuation Date: May 8, 2020





Appendix 2 – Curriculum Vitae of Dr. Kevin Neels

DR. KEVIN NEELS **Principal**

Tampa Bay Economic Consulting
400 Beach Drive NE
Suite 2301
Saint Petersburg, FL 33701

Dr. Kevin Neels is founder of and Principal at Tampa Bay Economic Consulting. Dr. Neels has more than 35 years experience as a consultant and expert witness in the aviation, rail, trucking, courier, postal, and automotive industries. He has led many significant engagements relating to competition, market structure, pricing, revenue management, distribution strategy, regulation, and public policy. His work has addressed issues related to system planning, competition policy, privatization, and congestion management.

Prior to founding Tampa Bay Economic Consulting Dr. Neels served as Principal and Transportation Practice leader at *The Brattle Group*, and as Vice President and leader of the transportation practice at Charles River Associates. He has also served as a researcher in the Urban Policy Program at the Rand Corporation and the Transportation Studies Program at the Urban Institute, as a Director in the Transportation Practice at the consulting firm of Putnam, Hayes & Bartlett, as a Management Consultant in the Transportation Practice of the firm now known as KPMG. Dr. Neels is a former Chairman of the standing Committee on Freight Transportation Economics and Regulation of the Transportation Research Board, an arm of the National Academy of Sciences. He is currently a member of the Transportation Research Board's standing Committee on Airport and Airway Capacity and Delay.

Dr. Neels has authored numerous research reports, monographs and articles for peer-reviewed journals. He has often been asked to offer expert testimony in legal and regulatory proceedings. He regularly serves as an invited speaker at conferences and industry forums, and his opinions and observations on industry developments are frequently quoted in the popular and trade press. Dr. Neels earned his Ph.D. from Cornell University.

A sample of the project experience of Dr. Neels is shown below.

EXPERIENCE

Airline Industry

- For a major U.S. network air carrier Dr. Neels was a key member of a team of consultants charged with the development of an operations research strategy aimed at improving the carrier's performance and competitive standing across a broad range of areas of operation, including financial planning, scheduling, crew management, maintenance, flight operations, air cargo sales, marketing, reservations and distribution. This engagement involved extensive onsite interviews with numerous operating personnel at the carrier's headquarters. It identified a lengthy list of investment opportunities involving the application of a variety of advanced decision support tools.

- For a major international air carrier accused of monopoly leveraging and attempted monopolization of a key market, Dr. Neels prepared a report analyzing the carrier's use of corporate discounts and travel agent override commissions, and rebutting arguments that these agreements could be construed as exclusive dealing.

- For a major U.S. air carrier, Dr. Neels conducted an extensive empirical investigation of the responses of travel agents to carriers' incentive and override programs. Using the results of this investigation, he evaluated his client's sales force management and travel agent incentive strategies to identify specific ways in which redesign and or retargeting could increase their net revenue yields.

- Working on behalf of a major air carrier in an antitrust case involving allegations of predatory pricing, Dr. Neels worked directly with the lead litigator for the case to develop a strategy to guide discovery. Subsequently, he conducted a variety of econometric analyses measuring the extent to which plaintiffs were harmed by the alleged predation.

- For a consortium of major U.S. air carriers accused of engaging in collusion and price fixing, Dr. Neels directed a major economic analysis of industry pricing strategy and pricing dynamics. Drawing upon detailed data on daily fare changes, Dr. Neels prepared testimony and exhibits demonstrating the difficulty of engaging in coordinated pricing behavior.

- In an antitrust dispute in the airline industry, Dr. Neels was retained by the defendant to critique and rebut damage calculations prepared by experts for plaintiffs. Dr. Neels conducted a detailed analysis of the assumptions underlying plaintiff estimates of lost profits, documenting numerous instances in which specific assumptions were contradicted by industry experience or by business plans prepared by the plaintiff prior to litigation. He showed that correcting these errors resulted in dramatic reductions in estimates of plaintiff damages. The case was eventually dismissed without an award of damages.

- Dr. Neels assisted in the preparation of statistical exhibits and an expert affidavit for submission by a major U.S. carrier in a rulemaking proceeding regarding airline computerized reservation systems conducted by the U.S. Department of Transportation.

- To support expert testimony in an antitrust case between two major U.S. air carriers, Dr. Neels developed and estimated a set of statistical models for estimating the effects of GDS display bias on the booking patterns and revenues of the affected airlines. As part of this effort Dr. Neels conducted an extensive analysis of the histories of the carriers in questions and of the development

of these computerized systems as the primary channel of distribution for airline tickets. He also prepared damage estimates, assisted in the deposition of opposing expert witness, prepared trial exhibits and advised counsel on cross-examination strategy during the course of the trial.

Airport and Airway System

- For the Federal Aviation Administration Dr. Neels directed the work of the Brattle Group as part of a major investigation of the economic costs of air travel delay. This work was carried out in collaboration with researchers from the Massachusetts Institute of Technology, the University of California at Berkeley, the University of Maryland, George Mason University and Virginia Tech. The overall investigation conducted a comprehensive inquiry into the consequences of delay, considering its effects on airline operating costs, airline scheduling practices, traveler behavior and overall economic efficiency. The work on Dr. Neels focused on the effects of travel delays on business travelers, and included original research on business traveler trip scheduling practices, on the value of lost time, and on the coping strategies employed by business travelers to minimize the burden of delay. Dr. Neels also played a major role in a macroeconomic analysis of the productivity impacts of delay on travel-intensive sectors of the economy.

- For the International Air Transport Association, Dr. Neels conducted an analysis and critique of a proposed change in the structure of air traffic control user charges levied on foreign carriers entering the U.S. and overflying its territory. He pointed out a number of serious flaws in the empirical analysis that formed the basis for the new system of charges. Implementation of the new charges was halted by a federal judge.

- Dr. Neels played a critical role in a project for the Air Transport Association (ATA) of the United States to evaluate proposals for reforming the nation's air traffic control (ATC) system and to develop an effective financial and organizational structure for a reformed ATC. The plan, developed under extremely tight deadlines, required an assessment of ATC technological capabilities, estimation of the cost effects of ATC on the airline industry, an economic analysis of current and proposed ATC organizational forms and detailed financial assessment of proposed ATC entities. Dr. Neels presented his analysis and proposal to airline chief executive officers at a meeting of the ATA board.

- For the public authority responsible for the operation of one of the largest international gateway airports in the country, Dr. Neels conducted a comprehensive review of sources of information on air cargo movements. Based upon the results of this review, he worked with authority staff to devise a strategy for monitoring trends in shipments by ultimate origin and destination, commodity, carrier and type of service, and for factoring this information into an improved process for planning and executing air cargo facility improvements.

- For the operator of a major U.S. hub airport, Dr. Neels developed a series of forecasting models for use in evaluating likely passenger responses to the introduction of new types of ground access services.

- For the government of a Mexican province, Dr. Neels developed a framework for use in evaluating proposals for new airport development.

- For a conference sponsored by the National Academy of Sciences, Dr. Neels analyzed the policy issues raised by proposals for using pricing to manage demand and reduce delays at major airports.

His analysis used standard antitrust tools to assess the extent of concentration in the market for airport services, and evaluated the potential for anticompetitive behavior in that market.

- To support the development of an airport system plan for a major metropolitan area, Dr. Neels prepared long-range activity forecasts for air carriers, regional airlines and general aviation.

- For an international gateway airport, he evaluated the impacts and effectiveness of a wide range of strategies for reducing delays. The policies considered included regulatory constraints on aircraft size, diversion of service to adjacent airports, a variety of pricing and slot allocation mechanisms, and expansion of facility capacity.

Aerospace Manufacturing

- For a foreign manufacturer of high end business jet aircraft Dr. Neels offered testimony on the structure of the market within which these aircraft are sold and the relationship between this market and the market aftermarket retrofits and modifications. His testimony examined the turnover of the existing fleet of high end business jet aircraft, trends over time in resale values, the relationship between new aircraft sales and trade-ins of previously owned aircraft, and the factors influencing the commercial success of aftermarket modifications under FAA supplemental types certificates.

- For a consortium of aerospace manufacturers, Dr. Neels examined and evaluated the economic, financial and policy arguments for including manufacturers as members of government sponsored insurance against war and terrorism risks. His analysis examined the nature of the risks in question, the state of the commercial market for insurance against them, the realities of multi-party tort litigation in settings where the parties enjoy dramatically different levels of insurance coverage, and the likely long-term economic impacts if aerospace manufacturers were because of the shut down of the commercial insurance market, forced involuntarily to self-insure against these risks.

- For a major manufacturer of business jet aircraft accused of monopoly leveraging and attempted monopolization Dr. Neels conducted an analysis of the structure of the business jet aircraft market, evaluating the extent to which availability of comparable models from other manufacturers constrained the ability of the defendant in the dispute to exercise market power.

- For a U.S. based manufacturer of business aircraft, Dr. Neels quantified the damages resulting from significant defects in a major subcontractor-supplied aircraft component. These defects had resulted in a number of plane crashes and the eventual grounding of a significant portion of the manufacturer's fleet. Dr. Neels developed a sophisticated econometric model that controlled for the effects of a number of market-related background factors, and isolated the effects of the component defects on sales, revenues and profits.

- For a manufacturer of high end business jet aircraft involved in a dispute over the closure of a manufacturing plant, Dr. Neels offered expert testimony on the status of the business jet aircraft market at the time of the closure and its effects on new orders, backlog and revenue for the manufacturer. His analysis focused in particular on the effects on the business jet aircraft market of the economic downturn that began in 2001 and the events on September 11, 2001. In response to testimony offered by opposing experts, he also analyzed the decision making process that led to closure of the plant, the options open to management, and the economic justifications for closing the plant.

Freight Transportation

- For an Ex Parte proceeding before the Surface Transportation Board Dr. Neels provided written testimony regarding procedures for settling disputes over the reasonableness of rail transportation rates. His testimony related to aspects of the Standalone Cost methodology employed by the Board in resolving these disputes, focusing in particular on the role that third party traffic plays in such analyses, and the manner in the revenues associated with such traffic are assigned to different portions of the routes followed by such traffic. His testimony discussed the typical structure of North American freight rail networks, and the roles that gathering, branch and main lines play in assuring the overall economic viability of the network as a whole.

- For a major U.S. based freight railroad, Dr. Neels developed a system of models to predict traffic levels and revenues by carrier for the North American freight rail market under alternative scenarios regarding market structure and regulatory policy. This modeling system incorporated detailed representations of the North American rail and highway networks, algorithms for determining shipment routing under alternative operating policies, and a series of statistical models capturing the underlying structure of freight traffic flows.

- For a non-U.S. government client, Dr. Neels led the team serving as fairness advisors in connection with the privatization of a government owned railroad. This engagement involved review of and commentary upon the bidding procedures employed in the transaction, analysis of the extent to which different bidders addressed and resolved policy concerns expressed by government officials, and advising government officials regarding the extent to which the various bids received reflected the full market value of the operation.

- On behalf of a provider of services to long-distance trucking firms, Dr. Neels offered expert testimony on the status of the trucking market, and on the extent to which a downturn in that market affected the value and economic viability of trucking firm service providers during a period in which his client concluded a series of acquisitions.

- In testimony before the U.S. Postal Rate Commission, Dr. Neels offered expert testimony analyzing the procedures used by the U.S. Postal Service to measure the transportation costs associated with its various products. His analysis addressed a wide range of issues, including the Service's use of its dedicated air network for transportation of expedited products, fieldwork procedures used to collect data on composition of the mail stream at different points in the rail network, potential biases in the assignment of transportation costs to products, and flaws in econometric analyses of transportation cost variability introduced by other witnesses in the proceeding.

- In support of a key economic witness in a hearing regarding refined petroleum product pipeline rates before the Federal Energy Regulatory Commission, Dr. Neels conducted an analysis of the relationship between product prices in the different geographic areas linked by the pipeline system. He also examined alternative transportation modes and concentration in the pipeline's origin markets.

- For a major U.S. railroad involved in a commercial dispute over trackage rights and trackage fees, Dr. Neels conducted a detailed analysis of over-the-track incremental operating costs. This analysis involved, among other things, extensive use of the Uniform Rail Costing System maintained by the Surface Transportation Board.

- For a major North American rail car manufacturer involved in a patent infringement lawsuit Dr. Neels offered expert testimony on the economic value of an innovative car design relative to existing designs, and on the damages imposed on the manufacturer as a result of infringement of its patents on this new design.

- For an express package delivery carrier intervening in a rate case before the U.S. Postal Rate Commission, Dr. Neels conducted a critical review of econometric studies of cost variability introduced into evidence by a witness testifying on behalf of the U.S. Postal Service. He identified a number of serious conceptual and methodological flaws in this analysis, and demonstrated that the substantive conclusions of the analysis were sensitive to relatively minor change in its design. On the basis of his testimony the Commission rejected the arguments of the Postal Service in the Commission's final ruling.

Automotive Industry

- For a group of automobile dealers, he conducted an econometric analysis to quantify the extent to which these dealers had suffered economic injury as a result of a scheme in which executives of the auto manufacturer accepted bribes from a subset of dealers in exchange for providing them with extra allotments of highly profitable car models. The settlement of this litigation awarded a payment of several hundred million dollars to the non-bribe paying dealers.

- For a major auto manufacturer contemplating litigation over an alleged theft of trade secrets, he developed a system of economic forecasting models to calculate the effects of the theft of sales of the company's products in a number of major international markets. Results of this confidential investigation played a key role in the company's subsequent decision to seek redress through the courts.

- For a group of automobile dealers engaged in a dispute with a distributor, Dr. Neels offered expert testimony analyzing the new auto allocation procedures used by the distributor, the distributor's policies regarding accessorization of new vehicles, and their economic effects of individual dealers. This work involved extensive econometric modeling of the dynamics of dealer inventories and the determinants of time to sale for individual vehicles.

- For a consortium of U.S., European and Japanese auto manufacturers and related firms, Dr. Neels played a key role in a major investigation of long-term trends in mobility. This study was worldwide in scope, addressing urban, rural and intercity passenger and freight transportation in both the developed and the developing world. Its particular focus was on the sustainability of the current transportation system, and the extent to which exhaustion of fossil fuels, environmental constraints, infrastructure shortages or institutional barriers were likely to constrain mobility over the next several decades.

Other Project Experience

- For an operator of vehicle and passenger ferry services to offshore islands, Dr. Neels conducted a detailed analysis of fares, costs, market structure, the extent to which particular services are subsidized, the structure of the market for ferry services, and the likely effects of changes in conditions of entry.

- For a major U.S. manufacturer that had been the target of industrial espionage and the organized theft of technology and other trade secrets, Dr. Neels offered testimony involving the stolen technology and, using a reasonable royalties approach, the damages suffered by the U.S. manufacturer as a result of the theft. At the conclusion of a jury trial in the United States, the manufacturer received a substantial damage award.

- For the U.S. Department of Energy, Dr. Neels conducted an extensive investigation of the technological, institutional and economic factors influencing the demand for residential heating fuels.

- For a Gas Research Institute study of natural gas usage in the steel industry, Dr. Neels provided consultation on statistical issues and worked closely with a team of analysts examining the economics of fuel substitution.

- Dr. Neels directed the team of economists responsible for conduct of the damages study for plaintiff in a major patent infringement lawsuit in the consumer products industry. His work included development of econometric models to forecast product sales in eight major world markets, analysis of the effects of incremental changes in sales volumes on company profits, review of historical pricing strategies and calculation of economic damages for a wide range of "but-for" pricing and product introduction strategies. He and his team also played a key role in the analysis of the case put forth by the opposing side and in the development of cross-examination strategies for opposing expert witnesses. He was designated as an expert witness in this matter, but was not called upon to testify.

- As leader of a project funded jointly by the Ford Foundation, the U.S. Department of Housing and Urban Development and a consortium of local corporations, Dr. Neels directed a year-long study by the Rand Corporation of strategies for privatizing municipal services in Saint Paul, Minnesota. A major component of this project was a detailed analysis of the incentives created by different financing mechanisms, organizational structures and personnel management systems. Findings of the study were published in a major report entitled *The Entrepreneurial City*.

- Dr. Neels played a major role in the preparation of expert testimony on behalf of a group of major domestic oil companies accused of conspiring to depress the prices paid to producers of a major input to tertiary oil recovery projects. This testimony focused on an examination of purchase contracts involving the defendants to establish market prices for the input in question over the alleged damage period.

- For the New York State Science and Technology Foundation, Dr. Neels participated in a project to facilitate the transfer to civilian firms and the commercial exploitation of photonics technology developed for military applications at a research center established at a major New York State military installation. This project included an assessment of the commercial value of the technology, the identification of firms in the vicinity of the research center with the research focus and capabilities to absorb the technology, and the design of institutional mechanisms for facilitating and supporting technology transfer.

PUBLICATIONS

"The Economic Cost of Airline Flight Delay". With Everett B. Peterson, Nathan Barczi and Thea Graham. *Journal of Transport Economics and Policy*, Volume 47, Part 1 (January 2013): 107-121.

"Federal Funding of Transportation Improvement in BRAC Cases." Transportation Research Board (2011).

"Private Sector: Lessons for the Public Sector" in Freight Modeling:State of the Practice in Current Practice Session of *Freight Demand Modeling Tools for Public-Sector Decision Making* in Conference Proceedings 40, Transportation Research Board, September 25-27, 2006, pp. 25,26.

"Pricing-Based Solutions to the Problem of Weather-Related Airport and Airway System Delay." *Air Traffic Control Quarterly*, Vol 10(3) 261–284 (2002).

"Congestion, Pricing and the Economic Regulation of Airports." Transportation Research Board, The Federal Aviation Administration, Conference on Airports in the 21st Century (April 20, 2000).

"Estimating the Effects of Display Bias in Computer Reservation Systems." With Franklin Fisher, In *Microeconomics Essays in Theory and Applications*. Ed. Maarten-Pieter Schinkel. Cambridge University Press, 1999.

"Clinical and Economic Value of Cardiovascular Nuclear Medicine." With Carla Mulhern. (September 1996).

"Insurance Issues and New Treatments." *Journal of the American Dental Association*, 125 (January 1994): 45S-53S.

"Medical Cost Savings from Pentoxifylline Therapy in Chronic Occlusive Arterial Disease." *Pharmacoeconomics* 4, No. 2, (February 1994): 130-140.

"Analyzing Rent Control: The Case of Los Angeles." With M. P. Murray, C. P. Rydell, C. L. Barnett, and C. E. Hillestad. *Economic Inquiry* 29, No. 4 (October 1991): 601–625.

"Forecasting Intermodal Competition in a Multimodal Environment." With Joseph Mather. *Transportation Research Record* 1139 (1987).

"Modeling Mode Choice in New Jersey." With Joseph Mather. *Transportation Research Record* 1139 (1987).

"Direct Effects of Undermaintenance and Deterioration." With C. Peter Rydell. In *The Rent Control Debate*. Ed. Paul L. Niebanck. Chapel Hill, NC: University of North Carolina Press, 1985.

"Energy and the Existing Stock of Housing." With M. P. Murray. In *Energy Costs, Urban Development, and Housing*. Ed. Anthony Downs and Katherine L. Bradbury. Washington, D.C.: The Brookings Institution, 1984.

"Reducing Energy Consumption in Housing: An Assessment of Alternatives." *International Regional Science Review* 7, 1 (May 1982).

"Production Functions for Housing Services." *Papers of the Regional Science Association* 48 (1981).

PROFESSIONAL AFFILIATIONS

- American Bar Association
- American Economics Association
- Licensing Executive Society
- Transportation Research Board

TESTIMONY

Before the U.S. District Court, District of Delaware Division, Expert Testimony in the matter of PACT XPP Schweiz AG v. Intel Corporation, Case No. C.A. No 19-1006 (JDW), May, 2022.

Before the Surface Transportation Board, Reply of the Kansas City Southern Railway Company, Verified Statement, Finance Docket No. 32760 (Sub-No.46), May, 2021.

Before the Surface Transportation Board, Reply of the Kansas City Southern Railway Company, Verified Statement, Finance Docket No. 32760 (Sub-No.46), April, 2021

Before the Surface Transportation Board, Reply of the Kansas City Southern Railway Company, Verified Statement, Finance Docket No. 32760 (Sub-No.46), January, 2021.

Before the U.S. District Court, Southern District of California, San Diego Division, Expert Testimony in the matter of Nuvasive, Inc. v. Alphatec Holdings, Inc., Case No. 3:18-CV-00347-CAB-MDD, June, 2018.

Before the American Arbitration Association (pursuant to an Order of the U.S. District Court for the District of Kansas), Expert Testimony in the matter of Dodson International Parts, Inc., v. Williams International Co., LLC, Civil Action 2:16-cv-02212-JAR-JPO, March, 2018.

Before the Supreme Court of the State of New York, County of New York, Expert Report in the matter of Xaleron Pharmaceuticals, Inc., v. Actavis, Inc. et al., Index No.: 150587/2016, November, 2017.

Before the U.S. District Court, Southern District of New York, Evansville Division, Expert Report in the matter of Richard Schoninger et al., v. James Green et al., Civil Action No. 15-CV-2233-PAC, February, 2017.

"Reply Report of Dr. Kevin Neels and Dr. Nicholas Powers to Accompany UPS Reply Comments," Report on Behalf of the United Parcel Service, Docket No. RM2016-12, November, 2016.

Before the Postal Regulatory Commission, Washington, D.C., Reply Report on Behalf of United Parcel Service, Docket No. RM2016-2, March 2016.

Before the U.S. International Trade Commission, Expert Report in the matter of Certain Activity Tracking Devices, Systems, and Components thereof, Investigation No. 337-TA-963, February, 2016.

Before the Postal Regulatory Commission, Washington, D.C., Report on Behalf of United Parcel Service, Docket No. RM2016-2, October 2015.

Before the United States District Court, Southern District of California, Expert Report Regarding Damages to Warsaw Orthopedic, Inc., Case No, 08-CV-01512-CAB (MDD), September 2015.

Before the Surface Transportation Board, Reply of the Kansas City Southern Railway Company, Verified Statement, Finance Docket No. 32760 (Sub-No.46), August 2015.

Before the Postal Regulatory Commission, Washington, D.C., Supplemental Report on Behalf of United Parcel Service, Docket No. RM2015-7, June 2015.

Before the Postal Regulatory Commission, Washington, D.C., Report on Behalf of United Parcel Service, Docket No. RM2015-7, March 2015.

"A Review of the Pipeline and Hazardous Materials Safety Administration's Draft Regulatory Impact Analysis," with Mark Berkman, prepared for The Railway Supply Institute, Committee on Tank Cars, submitted in Pipeline and Hazardous Materials Safety Administration Notice of Proposed Rulemaking for Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains, Docket No. PHMSA-2012-0082 (HM-251), November 2014.

Before the U.S. District Court, Southern District of Indiana, Evansville Division, Expert Report in the matter of Berry Plastics Corporation v. Intertape Polymer Corporation, Civil Action No. 3:10-cv-0076-RLY WGH, April 1, 2014.

Before the United States International Trade Commission, Washington, D.C., Expert Report in the matter of Crawler Cranes and Components Thereof, Investigation No. 337-TA-887, December 23, 2013.

Before the U.S. District Court, Central District of California, Declaration in the matter of Otto Bock Healthcare, LP v. Ossur HF and Ossur Americas, Inc., August 2013.

Before the Surface Transportation Board, Docket No. FD 35654, Verified Statement in the Genesee & Wyoming, Inc., Control, RailAmerica Inc., et. al., July 2012.

Appendix 3: List of Materials Considered

Report Sources	Bates Number or Website (when applicable)
Contracts and Agreements Related to Aircraft Leases	
• 2020 Framework Agreement with AMCK Aviation Holdings Ireland Limited	FRONTIER0002829-81
• CDB Aviation Letter of Intent dated June 29, 2020	FRONTIER0011290-321
• Jackson Square Aviation Letter of Intent dated October 7, 2020	FRONTIER0012136-44
• MSN 9549 Lease Agreement	FRONTIER0011322-463
• MSN 9549 Sale & Leaseback Agreement	FRONTIER0011464-99
• MSN 10031 Lease Agreement	FRONTIER0011500-641
• MSN 10031 Sale & Leaseback	FRONTIER0011642-77
• MSN 10038 Lease Agreement	AMCK014555-718
• MSN 10089 Lease Agreement	FRONTIER 0011678-819
• MSN 10089 Sale & Leaseback Agreement	FRONTIER0011820-55
• MSN 10384 Lease Agreement	FRONTIER0011912-2023
• MSN 10384 Sale & Leaseback Agreement	FRONTIER0011856-83
• MSN 10452 Lease Agreement	FRONTIER0012024-135
• MSN 10452 Sale & Leaseback Agreement	FRONTIER0011884-911
• Amendment No. 9 to A320 Family Aircraft Purchase Agreement, May 4, 2020	FRONTIER0005667-78
Deposition Transcripts	
• Deposition of Fabian Bachrach, March 15, 2022	
• Deposition of Sharath Sashikumar Bindu, April 1, 2022	
• Deposition of James Dempsey, April 6, 2022	
• Deposition of Robert Fanning, April 4, 2022	
• Deposition of Francis Lee, April 29, 2022	
• Deposition of Gerald Ma, April 27, 2022	
• Deposition of Michael McInerney, March 11, 2022	
• Deposition of Ronan Murphy, March 21, 2022	
• Deposition of Jane O'Callahan, March 23, 2022	
• Deposition of Paul Sheridan, March 25, 2022	
• Deposition of Spencer Thwaytes, March 30, 2022	
Public Sources	
• Data on 2019 Available Seat Miles from BTS T1	
• FAA Registry Search Results - MSN 9549	
• FAA Registry Search Results - MSN 10031	
• FAA Registry Search Results - MSN 10089	
• FAA Registry Search Results - MSN 10384	
• FAA Registry Search Results - MSN 10452	
• Frontier 10-K Form for the Year Ending December 31, 2021	
• Frontier Group Holdings Inc. Form S-1 filed on Mar-08-2021.pdf	
• The Stata Blog » Use poisson rather than regress; tell a friend.pdf	
• National Research Council 2011. Reference Manual on Scientific Evidence: Third Edition. Washington, DC: The National Academies Press.	https://doi.org/10.17226/13163
• Richard A. Brealey, Stewart C. Myers, and Franklin Allen, "Principles of Corporate Finance." 12th edition.	
• Market Yield on U.S. Treasury Securities at 10-Year Constant Maturity (FRED	https://fred.stlouisfed.org/series/GS10.
• "AMCK Aviation: Lessor," CAPA Centre for Aviation	https://centreforaviation.com/data/profiles/lessors/amck-aviation
• Investopedia, "An Economic Analysis of the Low-Cost Airline Industry"	https://www.investopedia.com/articles/investing/022916/economic-analysis-lowcost-airline-industry-luvdal.asp
• Wikipedia, "List of low-cost airlines"	https://en.wikipedia.org/wiki/List_of_low-cost_airlines
• Scott's Cheap Flights, "The Best and Worst Budget Airlines for Domestic Flights"	https://scottscheapflights.com/guides/the-best-and-worst-budget-airlines-for-us-domestic-flights

Other Materials Considered

- Complaint Dated November 18, 2020
- Amended Complaint in Frontier Airlines v. AMCK et al., Case No. 1:22-cv-02943
- Dato Capital Report on Accipiter Finance, dated May 25, 2022
- Slide titled "AMCK/Carlyle Acquisition Structure Based on the HK Stock Exchange Disclosure"
- "Disposals of Accipiter Finance S.A R.L. and Manchester Aviation Finance S.A.R.L.," dated December 24, 2021
- CK Asset Holdings Ltd Corporate Structure Chart (7-9-20).pdf AMCK004944
- AMCK Aviation Financial Statements for the year ended 31 December 2020
- Letter of Status from Companies Registration Office re: AMCK Aviation Holdings Ireland Limited, dated May 17, 2022
- May 24, 2022 letter from Drew Fine to Howard Diamond
- Email from Sharath Sashikumar Bindu dated October 7, 2020 FRONTIER0008478
- AMCK Comparison_10.07.20.xlsx FRONTIER0008479
- Bloomberg WACC Data - US Airlines
- Bloomberg LIBOR USD Rates for September 2020
- Bloomberg USSW9 Rates for July 2020 to April 2021